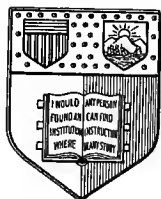


SOUTH AMERICAN HANDBOOKS



PERU

By Charles Vivian



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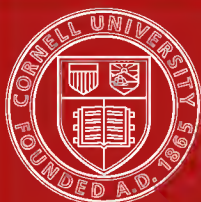
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PERU

SOUTH AMERICAN HANDBOOKS

P E R U

PHYSICAL FEATURES, NATURAL RESOURCES,
MEANS OF COMMUNICATION, MANUFACTURES
AND INDUSTRIAL DEVELOPMENT

BY

E. C. VIVIAN

LONDON

SIR ISAAC PITMAN & SONS, LTD., 1 AMEN CORNER, E.C.
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PERU

CHAPTER I

GEOGRAPHY, PHYSICAL FEATURES, AND CLIMATE

THE Republic of Peru is situated on the western side of the Continent of South America. To the north lie Ecuador and Colombia, to the east Brazil and Bolivia, to the south Chile ; on the west, her seaboard is washed by the Pacific Ocean.

The actual area is still uncertain, though the long boundary disputes with the neighbouring republics are being gradually settled. An agreement with Chile was signed in 1912, and the frontier line with Bolivia has been drawn from the mouth of the river Heath to that of the Yaverija. A definite arrangement was also made in 1910 with Brazil, generally favourable to Peru ; and the delimitation is proceeding under a European Boundary Commission, in which several British officers are taking part. A treaty was signed in September, 1909, between Peru and Colombia, but the delimitation has not yet been made. The chief outstanding question is, therefore, that of the Ecuador frontier, involving something like 100,000 square miles of territory. Offers of arbitration (*a*) by a joint Commission of the United States, Brazil, and Argentina ; (*b*) by the King of Spain or the Hague Tribunal, were accepted by Peru, but refused by Ecuador. Military operations took place

on the river Caquetá in July, 1911, in which Peru was successful ; but the question is still unsettled.

The Bolivian frontier is the most extensive of any, while the Chilean boundary has been moved northward since the war of 1879-81, by which the rich nitrate areas of Tarapacá and Tacna were lost to Peru. The treaty after the war gave to Chile Tarapacá and a ten years' tenancy of Tacna and Arica. At the end of that period a plebiscite should have been taken (in 1894) to decide which country should retain the area, but the popular vote was not taken, since Chile asserted that the whole population should vote, while Peru claimed that only Peruvians had that right. Thus the question was still nominally undecided up to 1912, when a definite agreement ceded Tacna to Chile—but, meanwhile, the nitrate revenues all went to the Chilean Government. Exclusive of Tacna, and anticipating the most favourable settlement of all other boundary disputes, Peruvians estimate the area of their own country at about 700,000 square miles, and their coast line at 1,350 miles, counting from the Ensenada of Santa Rosa in the north, to the northern boundary of Tacna.

Physically, the country falls naturally into three zones, of which the central or mountainous zone may be further subdivided into three "belts," differing in height and character. (1) The coast zone, that farthest to the west, is a practically rainless strip extending from the extreme north to the extreme south of Peru, and scarcely exceeding 60 miles in width at any point ; (2) the zone of the sierras, or Andine region, follows the north-west to south-east line of the Andes crests throughout the

country, and its uplands broaden out, especially in the south, to form the great tableland on which Lake Titicaca is situated, the mean height being from 11,000 to 12,000 ft. above sea-level; (3) beyond the region of the sierras lies the *montaña*, or river and forest zone.

Roughly speaking, the coastal zone occupies about a tenth part of the republic, the sierra a fourth part, and the *montaña* occupies the remaining thirteen-twentieths of the whole—though it is this zone which is in question through boundary disputes.

The great tableland of the sierra is bounded on the east by the Andes proper—this term being applied in an exclusive sense to the crests of the main range; the western boundary is formed by the western or coastal Cordillera, while numerous secondary ridges, rising but little above the level of the tableland, are also known as cordilleras. In the north, the western range is called the Cordillera Negra, owing to the absence of snow upon its upper crests; while the eastern range, the Andes proper, is known as the Cordillera Nevada. The highest elevation to which the coastal Cordillera attains is about 16,000 ft.; while the eastern or main range, which maintains a height of about 18,000 ft. between the *montaña* zone and the Huallaga river valley, forms the watershed between the Atlantic and Pacific regions of South America. The principal peaks of the range attain in Southern Peru a height of over 20,000 ft., chief among them being Coropuna (22,900 ft.), and the twin-peaked Huascarán, over 22,180 ft. in height.

A striking feature in the Andine chain is the occurrence of certain transverse ridges, known as “knots,” which

connect the main Cordilleras. In Bolivia, the knot of Potosi occurs in lat. 22° S. ; in Peru, the knot of Vilcanota, or Cuzco, occurs in lat. $14^{\circ} 30'$ S. Between the two lies the great Titicaca basin, 360 miles in length and 100 miles in breadth. Three chains run north from the Cuzco knot, converging, after about 440 miles, near lat. 11° S., in the knot of Pasco. To the north of the country the chains are cut by the Marañon and Huallaga, and unite again in Ecuador in the knot of Loja.

The rainless character of the COAST ZONE is due in part to the crests of the Andes, which intercept moisture from the east of the continent, and in part to the Humboldt current, which, lower in temperature than either the surrounding ocean or the air, prevents evaporation from the sea. It is responsible, however, for the formation of mists, which, in turn, admit the growth of scanty pasturage in places throughout the zone. Small streams, flowing westward at intervals along the coast, give rise to strips of vegetation in this desert zone ; and, wherever irrigation is possible, verdure flourishes. The greater part of the white population of Peru—about three-quarters of a million in number—is concentrated in the coast zone, in which Lima, the capital of the country, is situated, as well as the majority of important Peruvian towns. The climate here is excellent, the temperature fairly constant throughout the year, and about 10° lower than in corresponding latitudes east of the Andes. Except for the heavy mists which rise and deposit the heavy dews which this region enjoys, the sun is generally visible, but the cool breezes springing from the south and tempered by the Humboldt current render the air

peculiarly healthy. The general appearance of this coastal strip is, however, dismally brown and bare, and from Paita to Moquegua sterility is the rule; while the oases formed by the streams flowing from the coastal cordillera to the shore are the exceptions. In these spots, sugar-cane, cotton, rice, maize, and other tropical and sub-tropical products are cultivated, but the output of agricultural products is for the present small.

The zone of the SIERRAS falls naturally into three distinct "belts." First of these is a strip composed of the foothills and valleys of the western slope, adjoining the coast zone, and limited by the point where the altitude is between 10,000 and 11,000 ft. It is characterised by a tumbled confusion of jutting spurs from the central tableland of the sierras, alternating with deep valleys, ravines, and isolated hills and ridges. The geologic formation here is granite on the lowest levels, lava-capped in the south, and occupying the western extremities of the belt; while higher and farther inland are sandstone and limestone, quartzite, and conglomerates, bearing rich veins of gold, copper, quicksilver, and other minerals—little worked, but capable of being transformed into one of the great mineral fields of the world.

In the valleys of this region, maize flourishes; and alfalfa is also largely grown, together with most of the cereals of the temperate zone. The belt of the foothills is fairly well watered, its climate is healthy (except where stagnant water gives rise to malaria, known locally as *terciãna*), and it is on the whole one of the best parts of Peru from the view point of commercial possibilities.

The next belt eastward is the great tableland of the

Andes proper, ranging from 11,500 to 13,500 ft. above sea-level, desolate and treeless for the most part, and interspersed with lakes and stretches of morass, between which extend tracts underlaid by quartzite or limestone, and covered thinly by the *ichu* or mountain grass. Sheep, llamas, alpacas, and vicunas graze here in great numbers, and the inhabitants are mainly Indians, devoted to the care of the live stock. The great tablelands, unsurpassed in extent anywhere in the world except by the Tibetan plateau, are known locally as *punas*. At their western edge rises the third belt of the upland zone, the great cordillera of the true Andes range, white clad above the height of 16,000 ft. The range consists of two and sometimes three parallel lines of summits, between which the Peruvian feeders of the Amazon have their courses; and in these central valleys there exists a sparse population devoted to cattle-breeding, mining, and agriculture, cut off from the outer world by the vast heights that surround them—a world with which they communicate only by means of pack mule tracks across the mountain passes. The largest of these valleys is the great basin of Lake Titicaca, which in old time was reputed to drain to the Amazon, but which now empties its waters only into Lake Poopo to the south, forming with the last-named lake an inland lacustrine basin, unconnected with the ocean. In the hill-encircled *bolsones*, or valleys, of these southern *punas*, flourished the pre-Spanish civilisations of Peru—Inca, Aymará, and others of which even the names have vanished—for in these valleys are found both the climate and the products of the temperate zone; though the climate of the *punas* themselves is



Viscas Bridge, Oroya Railway

not all that could be desired, since rain, snow, and at times keen winds make a very inclement region of the exposed tablelands of the sierras. The only break in the average elevation of the chain is in the north, where on the Ecuadorean frontier a gap exists, only 6,700 ft. above sea-level. No other pass falls below 14,000 ft. in height.

THE MONTAÑA, the most easterly zone of Peru, comprises the lowest Amazonian slopes of the Andes, and not, as its name would seem to imply, the mountains themselves. It extends only up to about 5,000 ft. in height from the east. Except for this limitation of height on the west, the *montaña* is devoid of natural boundaries, and consists of a tropical, low-lying area, alluvial in character, and intersected by a network of large and generally navigable rivers, which contain multitudes of fish. The land is covered with dense forest growth, rich in useful plants and valuable timbers, and containing vast quantities of rubber trees, which have formed the basis of a prosperous and notorious industry for some years past. Tree-ferns, palms, and bamboos of many varieties abound, and the forests are inhabited by almost every species of animal that South America can boast, though the human population is made up of only a few tribes of savage Indians, whose numbers have been woefully reduced during the past two or three decades. Among the crops which thrive abundantly in the *montaña* region are cacao, coffee, sugar-cane, manioc, and coca; while a valuable kind of cinchona bark, the *Cinchona Calisaya*, is found here.

RIVERS.—The three main rivers of Peru are the great parent streams of the Amazon, named respectively the

Marañon, usually regarded as the true source of the Amazon, the Huallaga, and the Ucayali. These, together with some of the Ecuadorean affluents, converge beyond Tabatinga on the Brazilian frontier to form the Solimoës, or middle course of the Amazon. These three, chief among the Peruvian rivers, occupy courses roughly parallel to each other, flowing from south to north. The Marañon, flowing as it does along the valley enclosed by the western summits of the coastal cordillera, owes its title as source of the Amazon to its position nearest to the Pacific Ocean, rather than to its comparative importance; for the Ucayali, most easterly of the three, is a greater river at the confluence, and also has a greater navigable length. The Ucayali occupies the valley lying along the east of the Andes' crests, and together with its tributary, the Pachitea, is navigable for small steamers for a distance of over 800 miles; while other of its tributaries, the Apurimac, Urubamba, and Vilcanota, provide waterways navigable for small craft in the south of the country. Between these two extremes of the Peruvian highlands, the Huallaga cuts its way through the heart of the great plateau, rising in the vicinity of Cerro de Pasco, and flowing directly north by way of Huánuco, between the great enclosing ranges of the Andine plateau.

In the extreme east of the *montaña* region the Embira, the Purus, the Aquiri or Acre, the Madre de Dios, and the Beni have their rise in a network of morasses and small streams, flowing with an average easterly trend to augment the Madeira and other great southern tributaries of the Amazon. They traverse districts rich in

agricultural possibilities, though little visited, and possessed of a climate that may, without exaggeration, be termed virulent.

It is worthy of note that in 1851 a treaty was concluded between Peru and Brazil, securing to Peru full freedom for its shipping from Tabatinga to Pará on the Atlantic seaboard. At the present time there is a regular steamboat service between Iquitos and Pará, maintained by the Booth Steamship Company in connection with its ocean-going steamers to Liverpool and European ports.

The Marañon, rising in Lake Lauricocha, slightly to the north of Cerro de Pasco, has its source at 14,250 ft. above sea-level, and flows north-west for some distance in a series of unnavigable rapids, until at the falls of Manseriche it is only 550 ft. above sea-level. Navigation is possible only below Manseriche, and in its lower course, where it is joined by the Huallaga and Ucayali, the Marañon traverses territory still under dispute as to proprietorship, being either Peruvian or Ecuadorean.

The Ucayali, on the other hand, is formed of two great systems of waterways: its most southerly source is in the small Lake de la Raya, just north of the watershed between the Amazonian system and that which forms Lake Titicaca. At this point, so far as confused nomenclature will admit of certainty, the Ucayali is known as the Vilcamayo, which later becomes the Urubamba, and is joined by the Paucartambo from the east. Beyond this junction the main stream is joined by the second system of rivers which, flowing from the south-west, consists of the Catonga or Apurimac, with numerous mountain tributaries; and the Jauja or Mantaro, which

falls 12,000 ft. from its source, only 100 miles distant from the Pacific Ocean, to its junction with the main stream. From this junction to the point at which the Ucayali empties into the Marañon, it is a sluggishly flowing stream, easily navigable, and joined only by one important affluent, the Pachitea, by means of which, together with the Ucayali, a mail service is maintained between Lima, Iquitos, and Pará.

The Huallaga is of little economic importance, being navigable for steamers only for a distance of 30 miles above its mouth, to Laguna, though light native boats ascend to Tingo Maria, about 330 miles up the river. The remaining stream of importance in the *montaña* is the Javari, which for a considerable portion of its course forms the boundary line between Peru and Brazil.

The character of the country does not admit of the formation of large rivers draining to the Pacific. The streams that flow westward across the coast zone at intervals are intermittent in character, their beds being dry or nearly so for a great part of the year, and subject to periodical floods. Except the Santa and the Rimac, not one is in constant flow; and none is navigable. The greatest in volume is the Huarás, which flows from Lake Conococha, 13,000 ft. above sea-level, through the long, fertile valley named the Callejon de Huarás, between the main Andes range and the coastal summits, and falls steeply to meet the Rio Chuquicara. The joint stream makes an abrupt left turn, piercing the coastal cordillera and issuing to the coast zone as the Rio Santa, entering the Pacific at Santa, 250 miles from its source. The next stream of importance is the Rimac, on which

Lima, the capital, is situated ; and other coastal streams are the Pisco or Chunchanga, Ica, Grande, Yauca, Ocoña, Tambo, Ilo, Mages, and Vitor.

LAKES.—Including Lake Titicaca, the largest fresh-water lake of South America, the lake system of Peru is of importance, as Titicaca forms a means of communication with Bolivia, to which it in part belongs. Its greatest length is 130 miles, average breadth 44 miles ; and its altitude about 12,200 ft., though its present level is considerably lower than formerly. A steamer service connects Puno on the Peruvian coast with La Paz in Bolivia. The Peruvian plateau contains a number of other lakes, small in size, but noteworthy as the sources of some of the rivers. The Ucayali rises in Lake Chin-chaycocha, the Huarás in Lake Conococha ; other upland lakes are Parinacocha, Chinacocha, Huascarcocha, Cabal-lococha, and Huachacocha—*Cocha*, in the Quichua tongue, signifying “ lake.”

CLIMATE AND HEALTH.—In considering the climate of Peru as healthy, which it undoubtedly is, it must be borne in mind that the scourge of yellow fever is by no means eliminated from the country. This disease flourishes throughout all the coastal area, where another drawback is the great mortality among children, who perish under the “ seven days’ sickness,” a form of convulsions to which infants are subject, always with fatal results. Dysentery also affects the coastal area, while in the *montaña* typhoid and enteric, as well as malaria, are prevalent. In the mountains, the *soroche*, or mountain sickness, attacks new-comers, but never with fatal results. With the exception of this last, and of the

“seven days’ sickness,” the avoidance of disease is mainly a matter of sanitary precautions and care with regard to food and drink. Yellow fever, except in the extreme north of the country, is gradually being eliminated, as in Brazil, though Peru has not yet attained the standard reached in Rio and other Brazilian centres.

The temperature in Peru is relatively low, thanks to the Humboldt current on the west and the intervention of the Andes summits in the east. Lima, at lat. 12° S., has an average and fairly constant temperature of 60° ; and Cerro de Pasco, higher in altitude, averages 40° . Really tropical heat, however, is experienced in the closed valleys of the sierras, and in the *montaña* district the steamy discomfort of marshy land is added to equatorial temperature.

CHAPTER II

NATURAL HISTORY

THE FLORA of Peru is extremely varied. This is due, in part, to the numerous species imported from Europe and elsewhere, and naturalised in the country ; but still more to the enormous variation of soil and climate due to the range above sea-level. The most important and characteristic of the indigenous products are maize, potatoes, rubber, cotton, cacao, coca, cinchona, and sarsaparilla. Probably the best way of describing the flora is to proceed from the coast to the Montaña or forest of the interior, noting the various belts of vegetation encountered.

THE COAST REGION is, generally speaking, treeless, save for the algarrobas (*mesquite*) of Piura, and the trees artificially introduced in or near towns, such as the Australian eucalyptus. A great proportion of the coast area consists of sandy deserts absolutely devoid of plant life, even of cacti. These barren tracts are crossed by fertile river valleys, which produce sugar, cotton, rice, tobacco, cocoa. The olive (*Olea Europaea*) and the castor-oil bean flourish in Arequipa. Mulberry trees have been introduced for silkworm culture. Many kinds of fruit are grown, including grapes, oranges, melons, bananas, pomegranates, alligator pears (*paltas*), and *chirimoyas*. The ramie (China grass) and alfalfa, or lucerne, are grown ; and vegetable crops, such as beans, peas, lentils, and sweet potatoes. The *nopal*, or prickly

pear cactus, the habitat of the cochineal insect, is also found. On the foothills grass appears in the winter season of mists, and also the quishuar (*Buddleia incana*), a tree used for firewood and building.

The TEMPERATE ZONE, between about 6,000 and 11,500 ft. above sea-level, contains the potato, the *aji* or pepper, and various cereals—maize, wheat, barley, alfalfa, sorghum, and *quinua*. The splendid development of the maize and potato is due to the careful native cultivation for centuries before the coming of the Spaniards. Maize is used not only for food, but in the preparation of the drink called *chicha*; the large pods of the *aji* are eaten both green and dried; *quinua* is an indigenous grain, growing freely in thin soil at high altitudes, and very nutritious. The trees and shrubs include the *quishuar*, willow, mountain ash, eucalyptus, *roble* (a stunted oak), with hawthorn, acacia, elder, *datura*, rhatany, and ivy. Cacao is largely grown in the department of Cuzco, and coffee in Puno, Junín, and elsewhere. The *airampo* cactus occurs, and also the *maguey*, which gives a fibre used for making ropes and sacks. The common flowers and fruits familiar in Europe occur in profusion; and the traveller in the fertile valleys of this zone is often reminded of the flora of Devonshire or of Switzerland.

The HIGH PLATEAUX (*paramos*) and the slopes over 11,500 ft. produce a very scanty vegetation, which is put by the Indian to the fullest use. Trees no longer grow. The high, coarse grass (*ichu*) provides him with thatch, fodder, and fuel; from the lake edges he forms his rafts (*balsas*); and he finds another valuable fuel in



In the Forest of Chanchamayo

the woody fungoid *yareta* (*Azorella umbellifera*). Higher still, a few alpine plants and lichens lead to bare rock, and finally to perpetual snow.

The inter-Andine region contains the great river valleys leading to the Amazon ; and the vegetation is, according to elevation, alpine, temperate, sub-tropical, and tropical.

The eastern slope of the Andes descends into a new climate, with abundant rain, rich, deep soil, and tropical heat. The FOREST REGION, which covers about two-thirds of Peru, has all the luxuriant vegetation which is associated with the name of the Amazon—huge timber, thick undergrowth, lianas, and tropical ferns. It includes “almost every tree or plant known in the botany of South America,” and it has been calculated that one square league contains some 3,000,000 different species. An account of a pleasure trip from Lima to the Ucayali mentions, as noticeably prominent, broom, orchids, begonias, calceolarias, pampas grass, durantas, solonacias, wild cotton, and species of scarlet runners and brambles ; at places the ground was covered with arum lilies.

Among the most important products are : (1) Timber trees (*e.g.*, ebony, mahogany (*caoba*), cedar, hardwood or ironwood, walnut, and various dyewoods ; (2) medicinal plants (*e.g.*, cinchona, coca, sarsaparilla, vanilla) ; (3) tagua or vegetable ivory (exported for button-making) ; (4) resinous and gum-exuding trees, including the rubber *Hevea brasiliensis* and *Castilloa elastica* ; (5) fibrous plants ; (6) food-plants (*e.g.*, the papaya (*Carica papaya*) the large fruit of which is eaten raw, or boiled as a vegetable, or preserved ; (7) fruits ; (8) palms, ferns, etc. The best rubber (*jébe*) is found in the lowest portion of

Loreto, under 300 ft. above sea-level ; it grows to an average height of 70-75 ft. ; the lower grades grow above this elevation.

Agriculture is only beginning in this vast region. The chief products at present are rubber and coca ; but there is a certain cultivation, which admits of almost unlimited increase, of sugar, coffee, cotton, cocoa, tobacco, with bananas and other fruits. Transport is one great difficulty, though nature has provided a system of trunk-lines in the series of great navigable rivers.

In the FAUNA, as in the flora, there is a marked difference in the coast zone, the high uplands, and the eastern Montaña.

In the Coast Region, the animals, except those introduced by man, are few and scarce ; fish and bird-life, on the other hand, are abundant. The immense deposits of guano on the islands of the coast may serve to indicate the enormous number of large sea-birds (*alcatraces*, *gaviotas*, etc.). Fish abound both in the sea and the rivers ; the chief sea-fishing grounds are off the Lobos Islands, where skate, sole, plaice, haddock, cod, flounder, smelt, mackerel, and sardines are caught. The local names include the *corbina* (6-10 lb.), *morena* (3 ft. long), *peje-aguja* or needle-fish (2½ ft. long), *anchoveta*, *peje-blanco*, *bonita*, *cabrilla*, *castañeta*, and *tiboron*. Seals frequent the coast in large numbers ; lobsters, prawns, and shrimps of great size are caught. The *camaron*, or large fresh-water prawn, is esteemed a great delicacy. Lizards and scorpions occur in the hot deserts, and tarantulas in the valleys of the coast. The sea-cow (*manatee*), 7 ft. in length, comes up the rivers of the Montaña.

In the Sierra occur the fauna most characteristic of Peru. The four members of the Andean wool-bearing family deserve first mention : the Guanaco, the Vicuña, the Llama, and the Alpaca. Of these, the Guanaco or Huanaco (*Auchenia* or *Lama huanacus*) is the largest. It has never been domesticated, but is an important source of food to Indian hunters. It roams the upland plateaux in herds of 500 to 800. The second largest, also wild, is the Vicuña (*A. vicunia*). This animal moves in flocks of one male and six to fifteen females ; it is growing scarce, and is hunted mainly for its wool, which is finer than that of the alpaca, though the yield is smaller. The fleece is light brown, paler on the under part of the body. The llama and the alpaca have long been domesticated, and never occur now in a wild state. The llama (*A. glama*), which is smaller than the guanaco, stands some 3 ft. high at the shoulders, with a long neck. It is bred in the Titicaca region, mainly for its wool, though it is also useful as a pack-animal, carrying loads up to 75 lb. The fleece is usually white, occasionally spotted, and more rarely a uniform brown or black ; it is coarser than that of the alpaca. It is perhaps descended from the guanaco, though some naturalists believe it to be a distinct species. The alpaca or paco (*A. paco*), the smallest of the four, has a long fleece, usually black ; the fibre, strong and lustrous, is used for making blankets (*ponchos*). It is shorn every two years, giving a yield of 6 to 9 lb. None of these animals have horns ; they depend for protection partly on speed, partly on their faculty of "spitting"—the accurately-aimed projection of a mass of peculiarly unpleasant saliva. The diminishing number

of these animals has rendered necessary measures of Government protection.

The rodents include rats and mice, the viscacha, the chinchilla, and the cui. The viscacha (*Lagostomus trichodactylus*), or Peruvian hare, is a squirrel of the Chinchillidae family. It lives in deep burrows in colonies of twenty to thirty; it has long, soft fur, known in commerce as "bastard chinchilla." The chinchilla (*Ch. laniger*) is smaller; the fur—blue-grey at root, white in middle, and dark grey at the tips—is used in Europe for muffs and furs, and in Peru for making cloth fabrics. The Indians esteem the flesh for food. The cui is a guinea-pig, long domesticated, and used for food. A small species of deer is found in the uplands.

Fish are found in Lake Titicaca. The bird life of the region includes flamingoes, the white alcamarine, partridges, wild fowl of the duck and goose species, and the great condor of the Andes.

There are great numbers of horses, donkeys, cattle, and sheep, but these are all of foreign origin; they are, generally speaking, small but hardy.

The Montaña presents an abundant fauna of a totally different type, many members of which are dangerous or noxious. Enock states that "nearly 15,000 species have been recently collected, about 8,000 being new." We may mention the powerful puma or cougar and the jaguar, both of the cat tribe; the armadillo; the tapir or wild pig; the ant-eater; and the peccary or *tagassu*, another species of pig. Many species of snakes are found, including the boa-constrictor. Alligators and turtles frequent the rivers. The trees are alive with

birds (many, like the parrots, of brilliant plumage) and also with monkeys. There are numerous butterflies, some "as large as thrushes," of which the owl butterfly and the gorgeous blue *Morphos* may be mentioned; the beetles, mosquitos, and flies of various sorts are innumerable.

CHAPTER III

HISTORY

EARLY HISTORY.—There is no doubt that, in pre-Spanish times, the portion of Western South America, which is now known as Peru, was far more thickly populated than it is at present. Garcilasso de la Vega and other early writers assign to the country a population of from 8,000,000 to 12,000,000; and even after the conquest of the country by Pizarro and his associates, in the course of which many massacres were perpetrated among the natives, the population was estimated at 8,000,000. During this period there were three distinct civilisations, of which a definite (though only oral) record remains. These concerned two distinct races, the Yuncas of the western lowlands, and the Aymará-Quichua race of the Andes tableland.

The name “Yunca,” in the Quichua language, means merely “the hot lowlands,” and it was applied in error to this people, whose true name has been lost. Their language, known as *Mochica*, has been preserved in a grammar compiled by a certain Carrera, a native of the country, and was printed in 1644. It is by means of this grammar that the Yuncas are known to have been a separate race.

The capital of the Yunca or Chimu kingdom was Chan Chan, a city of considerable extent, which was captured and destroyed by the tenth Inca, Yupanqui. The city had a north to south length of over 14 miles and a

breadth of over 5 miles ; and the massive character of its remains is proof of the power and wealth of this people, whose territory extended for nearly 700 miles along the coast, and who were a cultured race when the Incas were only beginning to rise from barbarism. The monuments left by this race prove a high state of civilisation, but of an order different from any other in the southern continent.

The name "Aymará" was also applied in error like that of "Yunca." The original name of this people was "Collas," the Aymarás being a colony of settlers transplanted under Inca rule. Their civilisation, developed in a period anterior to that of the Incas, centred round Lake Titicaca, where still remain the most stupendous monuments to be found in the New World as testimony to the genius of this nearly forgotten race. The immense architectural remains of Tiahuanaco, consisting of blocks of stone weighing from 10 to 150 tons, are situated on what is at the present time a bleak plateau, miles distant from and hundreds of feet higher than the quarries from which the stone was hewn. In the islands of Lake Titicaca, and along its shores, are found Aymará (or rather Colla) structures which testify to the presence of a highly cultured, powerful race.

These two races, which almost certainly had subjugated and replaced earlier civilisations of the Andean area, were, in turn, conquered by the Inca race, and, under the system of the Inca empire, were so broken up, that by the time of the Spanish conquest they had become Inca in spirit. The Inca *régime*, according to Garcilasso de la Vega, a descendant of the royal race,

began with Inca Manco Capac in A.D. 1021, and numbered thirteen sovereigns, including the unfortunate Atahualpa, murdered by Pizarro.

The Inca capital, Cuzco, was the centre of an empire which extended, at the height of its power, northward to Quito, westward to the Pacific coast, east to Antisuyu, and southward to the river Maule in Chile. The form of government was a benevolent despotism, and the empire had reached its zenith, under the Inca Huayna Capac, just prior to the coming of the Spaniards. At the time Pizarro entered the country, civil war between two rival claimants for the throne had weakened the nation.

THE CONQUEST.—The Spanish conquest of the country forms one of the great romances of history. How, before the existence of such a country as Peru had been definitely ascertained, three men sat down in Panama and divided the spoils of the rich empire between them, is a story that has been told times out of number. The three signatories to the historic document which apportioned out the undiscovered empire were Hernando de Luque, vicar of Panama, who provided by far the greater part of the funds for the expedition; Diego de Almagro, who was charged with the business of equipping and victualling the expedition; and Francisco Pizarro, who was placed in command of the vessels in which the adventurers set forth on 24th September, 1524. This first attempt at discovering the country which was rumoured to exist somewhere to the south was unsuccessful, as were several later ones, and it was not till 1531 that Pizarro landed at Tumbes.

From intercourse with the outposts of Inca settlement



General View of Cuzco

along the Pacific coast, Pizarro, Almagro, and their followers gained some idea of the vast extent and wealth of the Inca empire. They heard of it as an exactly-governed prosperous dominion, with about 12,000,000 subjects. The hills were terraced and irrigated to permit of cultivation ; the land was fertilised with guanos and other manures ; and all cultivable territory was measured and divided into three parts : one for the priesthood of the sun, one for the upkeep of the royal line, and the remaining part for the support of the people themselves. Taxation was enforced in the form of cultivation of the lands of the Inca and of the sun, and other services to the State, and the lives of the people were so regulated, that even the smallest details of domestic life were under State supervision. Poverty and destitution were unknown ; the laws provided for the care of the old and infirm ; grain was stored in each village according to its requirements ; and each man was capable of making his own clothing. There was no coinage, nor any system of purchase. Gold and silver, used in enormous quantities for purposes of decoration, were the exclusive property of the Inca. No man of the lower orders owned anything, even he himself being the property of the State. The records of Garcilasso de la Vega and others prove that various arts and sciences reached a high state of perfection under the Incas ; arithmetic, geometry, geography, astronomy, music, and medicine were among their finer accomplishments ; while abundant evidence is still in existence to prove their skill in mining and metal working, building, weaving, and the manufacture of pottery. Such of their buildings as the Spaniards were

unable to destroy remain yet, scattered throughout the coastal zone and the Andine plateau, most noteworthy being the great fortress of Sacsahuaman. Little remains of their famous roads, said to rival the highways of old Rome in their construction ; one of these royal highways led from Cuzco to Quito, a distance of over 1,200 miles—and the carriers organised and maintained by the Inca government traversed that distance in twenty days. Another of these roads led from Cuzco throughout the coast zone of the empire, and suspension bridges of 200 yards' span were employed to maintain the continuity of the way. Fully developed Socialism, or absolute tyranny, was here in operation, and the singularly unambitious character of the people made it a success.

Seven years of privation, toil, and disappointment, and nearly 150 lives, went to the actual discovery of the Inca empire by the Spaniards ; and then in January, 1531, Pizarro set out with a force of 180 men, including his four brothers, for the real conquest of Peru. The Island of Puna and the settlement of Tumbes were first subjugated, and by means of fresh reinforcements from Panama a series of conquests of the settlements along the coast was made. After a year's work along the coast, Pizarro learned that the settlements he was reducing were but the fringe of a huge and powerful State ; he had now gained news of the existence of Atahualpa, the Inca emperor, and also of the great central settlements of Cajamarca and Cuzco.

Pizarro laid the foundations of the settlement of San Miguel, intending that it should serve him as a base ;

and in September, 1532, set out on his great march toward the interior, in search of Atahualpa. News of the emperor was first obtained at the Inca town of Caxas, whence one Hernando de Soto, who led an advance guard, returned with messengers from the emperor, bearing presents and assurances of his peaceful intentions. Thence Pizarro led his force along the Inca coast road, following the track to Cajamarca, where the Inca was reported to be. Arriving at the foot of the cordillera, the Spaniards learned of the civil war between Atahualpa and his brother Huascar. Cajamarca was entered on the 15th November, 1532, and the Spaniards occupied a large plaza or square in the centre of the town; a message announcing their arrival was sent to Atahualpa, and Hernando Pizarro, Francisco's brother, visited the Inca's camp outside the city and brought back a message to the effect that Atahualpa would visit the Spaniards on the following day.

Attended by crowds of his unarmed followers, the Inca arrived after sunset. At Pizarro's instigation, Friar Vicente Valverde, the priest of the expedition, addressed the Inca through an interpreter, bidding him render tribute to the Emperor, the Pope, and the God of the Spaniards. The friar placed a Bible in the Inca's hands, and Atahualpa, after glancing at the pages of the book, threw it carelessly aside.

At this the friar, a fanatic of the worst type, called on the Spaniards to avenge the insult to their faith. Pizarro and four others, rushing forward, seized the Inca, while the remainder of the Spaniards began an indiscriminate massacre of the Indians in the Plaza. Without

a single casualty on the Spanish side, 2,000 Peruvians, unarmed and defenceless, were slaughtered, Atahualpa remaining a prisoner in the hands of the Spaniards. As ransom, the captive emperor offered to fill a room, 22 ft. long by 17 ft. wide, with gold to a point as high as a man could reach, as well as to fill the room twice with silver. The offer was accepted, and the Inca sent messengers to Cuzco for the required stores of metal. The total value of the gold and silver, thus infamously obtained, was three and a half million pounds sterling ; but, although the ransom was paid, Atahualpa was not released. Dispatching his brother Hernando on a reconnoitring expedition through the country, Pizarro got rid of Hernando de Soto, another cavalier of the expedition, who might have proved too scrupulous, on a similar pretext, and arraigned Atahualpa, accusing him of instigating the formation of a force in the north of the country to overwhelm the Spaniards. Although twelve cavaliers of the party, impelled by a sense of honour, protested against the proposed murder, Atahualpa was condemned to be burnt alive, and was ultimately strangled in the plaza of Cajamarca on the 3rd of May, 1533. No blacker act of treachery is to be found in the history of the conquest of the New World. The outraged Peruvians rose against their invaders after this, and for a time the existence of the Spaniards was imperilled ; but by the 15th November, 1533, they had overcome their opponents sufficiently to enter Cuzco, where Pizarro invested the Inca Manco as Atahualpa's successor—but merely as a figurehead.

Proceeding to Spain with the great treasure acquired

by the plunderers, Hernando Pizarro brought back with him the decree by which Francisco Pizarro was granted dominion over 270 leagues of coast line, while Almagro was appointed to the command of what is now the Republic of Chile ; but the royal decree was so loosely worded, that the ownership of Cuzco, which was near the boundary line between the two new colonies, was left in doubt.

Early in 1536, the Inca Manco rose against the Spaniards, and so fierce became the struggle that reinforcements were summoned from outside the country. The return of Almagro from his new country of Chile disheartened Manco and his followers ; the last Inca retired to safety among the recesses of the mountains, and the Spanish conquest of Peru was now complete.

CIVIL WAR.—Almagro, claiming Cuzco as part of his territory, took possession of the city in April, 1537, capturing Hernando and Gonzalo Pizarro, whom he subsequently released. This dispute ended in a pitched battle between the forces of Almagro and those of the Marquis Francisco Pizarro, in which Almagro's force was utterly defeated, and he himself was captured. He was finally strangled in prison by order of the merciless Hernando Pizarro.

After Almagro's overthrow and death, the Marquis Francisco set about the settlement of the country, established order, and developed the mining industry. But the "men of Chile," ruined followers of Almagro's son, plotted against the murderer of Atahualpa and—as they conceived—the originator of their misfortunes. On the 26th June, 1541, a band of the malcontents, under

Juan de Herrada or Rada, entered the house of the marquis in Lima, overcame the slight defence of Pizarro's followers, and slew him after a fierce struggle, in which he accounted for two of his assailants.

The young Almagro's followers disputed the possession of the country with Vaca de Castro, the governor sent from Spain to succeed Pizarro ; but in a battle fought near Jauja, the Chilean faction was defeated, and Almagro and the murderers of Pizarro were executed. In 1543, Blasco Nunez Vela, first viceroy of Peru, arrived, and simultaneously the Royal Audience of Peru was established. Gonzalo Pizarro disputed the governorship of the country with the new viceroy, and in a battle which ensued two of the judges of the Royal Audience espoused opposite sides. Blasco Nunez was killed in the battle, and Gonzalo Pizarro became governor of the country in 1546.

His rule was terminated by the ecclesiastic, Pedro de la Gasca, who was sent from Spain on it being rumoured that Gonzalo was attempting to set up a separate kingdom. After various battles, Gasca overthrew the last of the Pizarros, and executed him together with the veteran fighter Carbajal and a number of his adherents. Contemporary accounts of the character of Gasca are conflicting, but he certainly brought peace to Peru and kept the country in order for the period of his stay.

After the departure of Gasca, and the arrival of the second viceroy, Antonio de Mendoza, civil war again broke out. The third viceroy, Andres Hurtado de Mendoza, Marquis of Cañete, came to the country in 1555, and ruled Peru with a heavy hand, expelling a

number of Spaniards whom he found of more trouble than use to the colony.

COLONIAL PERIOD.—Toward the end of the sixteenth century came the viceroy Toledo, under whom the descendants of the Inca race were systematically oppressed, and the young Inca Tupac Amaru driven to a semblance of rebellion as a pretext for his execution. The system under which the Spanish colonists had been allowed to employ the natives, little better than slavery, had gone far towards reducing their numbers ; but under the government of Toledo, the destruction of the race outstripped even that of the Pizarros themselves.

In all, forty-four viceroys governed the country during the Spanish period ; Lima became the Spanish capital of South America, and the Peruvian viceroyalty and Royal Audience formed the supreme court of the continent. A million ducats went annually to Spain from the mines of Peru ; quinine, ipecacuanha, chocolate, and potatoes were some of the gifts that the new continent gave to the old ; while, in return, Peru was enriched by the introduction of wheat, oats, alfalfa, olives, grapes, and other growths hitherto unknown west of the Atlantic. But, apart from material benefits such as these, Peru gained little from Spain ; the main object of the home government was the suppression of freedom of thought and action ; the printing press was rigidly supervised and censored ; the colonists were treated as children ; the Inquisition arrived with its attendant evils, religious intolerance and persecution, and priest and layman alike united in oppressing the original inhabitants of the land.

In the eighteenth century it was found that the Peruvian

Viceroyalty had become too unwieldy for effective government of the whole continent, and New Granada, comprising the present republics of Colombia, Venezuela, and Ecuador, was constituted a separate government; while toward the end of the century the Plate River countries were placed under another viceroyalty at Buenos Aires. The oppression of the natives brought about a general revolt in 1780, for forced labour—especially that in the mines—had become unendurable. After various battles, the rebellion was crushed, and its leaders, including Tupac Amaru, a descendant of the Inca race, were barbarously executed at Cuzco. A few reforms followed, more liberty was allowed to scientific and literary development, and even the printing of a newspaper was allowed.

REVOLT FROM SPAIN.—The events of the Napoleonic wars, however, revealed to the Spanish colonies the weakness of the Mother Country, and the general unrest expressed itself in Peru by the destruction of the Inquisition and all its appurtenances at Lima in 1813. By this time most of the other Spanish colonies in South America had declared for independence, but Peru, oldest and strongest centre of Spanish authority, remained loyal to the last; and it was not till August, 1814, that the patriots of Cuzco rose in open revolt against the Viceroy. General Ramirez, with 1,300 regular troops, had no difficulty in defeating the insurgents, and a series of executions followed.

Pezuela, the penultimate viceroy of Peru, who came to rule in Lima in July, 1816, reported to Spain that the country was a hotbed of revolutionary sentiment. Early

in 1817, San Martin, the hero of Argentina, annihilated Spanish power in Chile, after which he undertook, in connection with Lord Cochrane, the task of freeing Peru from Spain. After various encounters both by land and sea, Pezuela was deposed from his position ; disaffection made itself evident among the Royalist forces ; and the independence of the country was proclaimed on the 28th July, 1821, San Martin being appointed Protector. He resigned his position on the advent of Simon Bolivar, having organised the independent government of the country and established its congress.

The first President of Peru, José de la Riva Agüero was elected in February, 1823. But the contest with Spain was not quite ended, for La Serna, the viceroy who had been appointed in succession to Pezuela, was established at Cuzco with a force strong enough to defeat the republican army under General Santa Cruz, who gave battle to the Royalist army near Lake Titicaca. In June, Riva Agüero was deposed, and in 1824 Bolivar became dictator. With an army composed of Colombian and Peruvian troops, and in conjunction with General La Sucre, he defeated the Royalist army under General Canterac at Junín, and marched on Cuzco, La Serna's stronghold and the last centre of Spanish authority in South America. The last battle against Spain was fought at Ayacucho. Bolivar's army totalled about 6,000 men, while La Serna had a force of 9,000 and more ; but, in spite of their inferiority in numbers, the patriots were completely victorious ; the whole of the Royalist army was either captured or slain, and Bolivar was hailed throughout Peru as the saviour of the country.

Bolivia was established as a separate republic, and Peru, with nearly the same area as belongs to it to-day, entered on its republican career.

INDEPENDENCE.—The list of rulers of Peru, printed at the end of this chapter, gives some indication of the almost continuous political upheaval which followed the declaration of independence in 1821. The next quarter of a century presents a welter of warring ambitions; every general who could command the services of a regiment aspired to become head of the State, and each, as he attained supremacy, was attacked by his jealous rivals. The fall of the vast Spanish empire in South America was so sudden and complete, that time was needed before its diverse elements could group themselves afresh and acquire national traditions and feeling. Consequently, the internal dissensions of Peru were complicated by interference from, and wars with, her neighbours. Gradually, however, the separate entities of Peru, Bolivia, and Ecuador emerged..

There was war with Chile in 1836–7, and again in 1838; a series of revolutions followed, and meanwhile the proprietorship of the rich nitrate deposits in the south of the country gradually became a vexed question between Peru and Chile. Bolivia, which then extended to the Pacific coast, also took part in this dispute.

The first period of peace and progress was reached in two presidencies of Ramon Castilla, 1845–51 and 1855–62. Castilla was not only a strong and capable, but a constitutional, ruler. He refunded, with accrued interest, the foreign debt incurred in the wars of independence, and promoted in every legitimate way the development

of the country. Under his successors, the old evils sprang up with renewed force—military ambitions, corruption, extravagance, nepotism.

A little naval war between Peru and Spain in 1864–66, prevented serious complications over republican boundaries, and Chile shared the burden of this war with Peru. Peru suffered severely from a bombardment of Callao by the Spanish squadron, 2nd May, 1866; but the Spanish ships were also so much damaged by the fire from the Peruvian batteries, that further hostilities were abandoned. The war was followed by a revolution which placed President Balta in office; his rule is noteworthy for great projects of material progress, in port-works, railways, parks, public buildings, and the development of the Montaña region. Great revenues were now pouring into the treasury from the guano and nitrate deposits, and Castilla's financial reforms had given Peru a good name in the money markets of Europe. The great Central and Southern railways were magnificent in conception, though possibly built too soon; but they were built entirely on foreign loans, the repayment of which crippled the development of Peru. (See chapter on *National Finance*.)

Balta was eventually murdered, and Manuel Pardo, who succeeded him, set about the organisation of schemes of retrenchment and economy rendered necessary by Balta's reckless expenditure.

WAR WITH CHILE.—Meanwhile, Chilean capital and enterprise were busy developing the nitrate areas of the Atacama desert, and the Peruvian Government (working in concert with Bolivia) attempted to impose a tax on the

Atacama products, in order that the Peruvian nitrate industry in Tarapacá might benefit. Chile seized the port of Antofagasta, without any formal declaration of war, and the Bolivian Government thereupon declared war against Chile. The Peruvian minister at Santiago del Chile suggested that Peru should mediate between the two countries, but this offer was declined. Since Peru would not forego her treaty with Bolivia and declare neutrality, Chile declared war against Peru in April, 1879.

At the outset, public opinion declared that Chile could not possibly survive a war with Peru, especially with the weight of Bolivia on the Peruvian side ; but the event proved the contrary. For years, Chilean administrators had been strengthening their navy and making preparation for such a war, while the Peruvian Government had pursued a policy which involved numerous revolutions and little beside. The issue of the war depended on the control of the Pacific ; the combatant who was supreme at sea could blockade or bombard the ports of the enemy and—since government, commerce, and civilisation were centred on the coastal region—must eventually be victorious. In the first engagement the Chileans lost the *Esmeralda*, but the Peruvian *Independencia* ran on sunken rocks and was wrecked. Then for four months the Peruvian ironclad *Huascar*, under the brilliant command of Grau, held Chile in check and terrorised the coast ; but with its capture off the coast of Antofagasta on 8th October, 1879, after a desperate and historic battle against overwhelming odds, the Chilean navy became supreme. The way was clear for her invading forces ; and the Peruvian army in Tarapacá was isolated. The

outstanding events in the campaign that followed were : the landing of the Chileans at Pisagua, on 2nd November, 1879, under protection of heavy fire from the guns of the fleet ; the failure of the Peruvian attack on the Chilean position at San Francisco, 16th November ; the retreat of the Peruvians first to Tarapacá, where a Chilean attack was repulsed with considerable loss, 27th November, and then across the desert to Arica ; the defeat of the allied Peruvian and Bolivian forces at Tacna, 26th May, 1880 ; and the brilliant Chilean capture of the Morro Hill and the forts at Arica by a night surprise, 5th June.

Meantime, the blockade of Callao had begun, and lasted from April to December, and the coast ports and valleys were ruthlessly ravaged. It would have been the wiser policy for Peru to acknowledge her defeat and submit ; but national pride forbade this. The consequence was a Chilean invasion in force in January, 1881, directed on Lima. Peru made a desperate but unavailing resistance at Chorrillos and Miraflores, 14th and 15th January, and Lima was entered on 17th January. Mainly under Cáceres, Peru still maintained a guerilla warfare ; Chile meantime occupied the capital for two years and nine months, confiscated the Customs revenues, and made barbarous reprisals on property, such as the spoliation of the National Library. No systematic attempt was made to conquer the interior, though Arequipa was captured, July, 1883.

The coastal zone of Peru was dependent on outside supplies for the means of subsistence, and with a navy superior in every way, the Chileans had little difficulty in reducing the majority of the coast towns.

By October, 1883, when the humiliating Treaty of Ancón was signed, the Chilean forces had devastated Peru and dictated the election of General Iglesias to the Peruvian presidency. The treaty, ratified in May, 1884, provided for the cession of the nitrate province of Tarapacá to Chile, and a ten years' Chilean tenancy of the province of Tacna with Arica, on condition that at the end of the ten years a plebiscite should be taken to decide to which country the province should belong permanently; that country should then pay 10,000,000 dollars to the other—a policy of “heads I win, tails you lose,” for Chile. The plebiscite has never been taken, but Tacna, under an agreement arrived at in 1912 between the two countries, is now definitely a Chilean province, and Bolivia no longer possesses a seaboard.

PERU TO-DAY.—One of the later revolutions, that of 1895, involved three days' furious fighting in the streets of Lima, with a death roll of over 3,000; but Pierola, who came to the presidency after this, brought about many improvements in the country, a notable change being the standardisation of the currency, the *sol*, equivalent to two English shillings, being introduced in 1899.

A reform of the electoral law was passed in 1897, by which a committee of nine was appointed to examine electoral returns; and another law of 1897 legalised marriages performed by foreign diplomatic ministers, consuls, and ministers of dissenting churches, provided they were entered in the civil registers; in 1903 further facilities were given for the marriage of non-Catholics.

Since 1895, revolutionary movements in Peru have been inconsiderable, and, on the whole, the last eighteen

years in the history of the republic have been characterised by steady progress in many ways. The only outbreak has been that of 4th February, 1914, when President Billinghurst was deposed and the Premier (General Varela) was shot.

Education, the improvement of sanitation in the towns, the amelioration of the lot of the Indian population, the development and extension of railways, and the opening up of the vast mineral resources of the country by means of judiciously attracted foreign capital, are some of the subjects to which the government has devoted particular attention.

The chief drawbacks to the development of the country at the present time are sparse population, together with a cessation of immigration, and the lack of local government in the *montaña* region, out of which has arisen the devil's tragedy of the Putumayo, and other less known but glaring offences against the elemental laws of human intercourse. These things are possible in the hinterlands of Peru, because the hand of the government cannot as yet effectively control its huge territories. This, however, is a fault that is being gradually overcome, for the pressure of public opinion has, in a measure, forced the Government to bestir itself; but there is much to be done yet before the *montaña* of Peru can claim to rank as a civilised country, even in the portions that are under control of white or half-breed population.

RULERS OF PERU FROM THE DECLARATION OF
INDEPENDENCE, 28TH JULY, 1821

1821 (Aug.). José de San Martín (Protector), *resigned*, 1822.
1823 (Feb.-Nov.). José de la Riva Agüero (first President),
deposed.

- 1824 (Feb.). Simon Bolivar (Dictator), *left the country*, Sept., 1826.
- 1827 (Aug.). José de Lamar y Cortazar, *deposed*, June, 1829.
- 1829 (Aug.). Agustin Gamarra (Provis. Pres.).
- 1833 (Dec.). Luis José Orbegoso.
- 1835 (Feb.). Felipe Santiago de Salaverry (Supreme Chief), *executed*, Feb., 1836.
1836. Andres Santa Cruz (Protector of the Confederation of North Peru, South Peru, and Bolivia), *retired to Europe*.
1839. Agustin Gamarra (Provis. Pres., then Constitutional President and "Restorer"), *killed at the battle of Yngavi*, Nov., 1841.
1841. Manuel Menendez (Acting President), *deposed*, July, 1842.
1843. Manuel Ignacio Vivanco (Supreme Director), *retired to Chile*, July, 1844.
1844. Manuel Menendez (restored as Acting President).
1845. Ramon Castilla (for six years).
1851. José Rufino Echenique, *fled*, Jan., 1855.
- 1855 (July). Ramon Castilla, *resigned*, Oct., 1862.
1862. Miguel San Roman, *died*, 1863.
1863. Juan Antonio Pezet, *resigned*, Nov., 1865.
1865. Mariano Ignacio Prado (Supreme Chief), *retired*, Jan., 1868.
1868. Pedro Diez Canseco (Acting President).
- 1868 (Aug.). José Balta, *murdered*, 1872.
1872. Manuel Pardo (first civilian President).
1876. Mariano Ignacio Prado, *fled to Europe*, Dec., 1879.
- 1879 (Dec.). Nicolas de Pierola (Supreme Chief), *resigned*, Nov., 1881.
- 1881 (Mar.). Francisco Garcia Calderon (Provis. Chief of Executive), *exiled to Chile*.
- „ (Nov.). Lizardo Montero.
1883. Francisco Garcia Calderon.
- „ (Oct.). Miguel Iglesias (Provis.), *resigned*, Nov., 1885.
1886. Andrés Avelino Cáceres.
1890. Remijio Morales Bermudez.
1894. Andrés Avelino Cáceres, *left the country*, March, 1895.
- 1895 (Mar.). Manuel Candamo (Provis.).
- „ (Sept.). Nicolas de Pierola.
1899. Eduardo de Romaña.
1903. Manuel Candamo; *died*, May, 1904.
- 1904 (Sept.). José Pardo.
1908. Augusto B. Leguía.
1912. Guillermo E. Billinghurst, *deposed* Feb., 1914.

CHAPTER IV

THE INCA AND PRE-INCA RUINS

THE traveller in Peru will meet with abundant traces of the earlier civilisations of the country—both pre-Inca and Inca—in the shape of temples, palaces, houses, fortresses, aqueducts, reservoirs, pyramids, and cemeteries. It may be both interesting and useful to him to know where the most important of those are to be seen, of what they consist, and how they are related to the history of the country. There are, however, many problems of Peruvian archaeology as yet unsolved, and the scientific study of the subject is comparatively recent. The views given are, to some extent, provisional, and may be modified in detail by further investigation.

Many of the early buildings termed “Inca remains” are not such in reality. It is necessary to distinguish the comparatively short period of the true Inca rule, from an immensely ancient period of culture preceding it. The Inca period proper commenced about 300 years before the arrival of Pizarro in Peru, and is divided into the reigns of the twelve (or possibly thirteen) rulers named by the early chroniclers. Approximately, the period was from 1230 to 1530 A.D. But it is clear that the civilisation found by the Spaniards, could only have been developed in a far vaster number of generations. Not only had a remarkable skill been attained in pottery, weaving, architecture, and metal-working, together with some proficiency in mathematics and astronomy; but

such less obvious points as the evolution of maize and potatoes from wild plants, and of the domesticated llama and alpaca from wild ancestors, presuppose the lapse of countless generations. Some of the early remains of this pre-Inca period may be coeval with the early work of Egypt or Assyria; the later portion of the period is probably that of the ninety kings mentioned by the chronicler Montesinos as preceding the reigns of the twelve Incas.

Within this great pre-Inca period two main culture-schools existed, one of the highland plateaux and the other of the coast. On the coast, two subsidiary centres of craftsmanship are found: at Trujillo and Nasca. It seems probable that the nucleus of the Peruvian empire was at Tiahuanaco (now in Bolivia), with frontier fortresses at Cuzco and Ollantaitambo, directed against the wild tribes of the upper *Montaña*. The seat of empire was later transferred to Cuzco, and it was probably from this centre that the rulers proceeded to conquer the coast settlements, meeting with occasional reprisals. Probably the highland and the coast civilisations were evolved independently for a long period, before the conquest of the latter region brought them into contact and inter-action.

Taking together the building remains of the Inca and pre-Inca periods, we may distinguish (a) megalithic and cyclopean work, as at Tiahuanaco; (b) work of unhewn stone, as in the innumerable hill-fortresses; and (c) work of smaller hewn and squared stone, as in the later walls at Cuzco. Chronology and sequence is peculiarly difficult to ascertain, owing to the facts that the early Peruvians had



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*A Quichua Indian of Peru—a descendant of the Inca race.
The background shows old Inca masonry*

no alphabet, and that carved ornament is comparatively rare. The stone remains are chiefly in the highlands; while those of the coast, where stone was comparatively rare, were largely built of sun-dried bricks (*adobes*), which, though easily destructible by the hand of man, will last otherwise for amazingly long periods in the extraordinarily dry, rainless climate.

Some of the most important sites are described below. It may be added that, while accounts of particular sites and explorations have been more recently written by other investigators, the most comprehensive work on the subject is that of the American E. G. Squier, issued in 1877: *Peru: Incidents of Travel and Exploration in the Land of the Incas*.¹

COAST REMAINS.—The most accessible of the sites containing ruins of early buildings are those near Trujillo and Lima: a description of the most remarkable of these is given in some detail below. But nearly every valley has many ruins, *e.g.*, the valleys of Cañete ("palacio del Rey Inca"), Huarcu, Chillon, Barranca (fortresses possibly marking the southern limit of Chimu rule), Santa, Moche, Nepeña (Huaca Tambo), Casma (Calaveras, Quisque, Alpacote), and Pisco.

Particularly characteristic of the coast population are the truncated pyramids known as *huacas*. In some cases these are solid masses of *adobe* brick, built round a central core, and, perhaps, raised in honour of some deity; in others, they contained numerous painted chambers for the reception of the dead. They are generally of great extent (*e.g.*, that of El Obispo, near Trujillo, covers an

¹ Macmillan.

area of about 8 acres and rises to a height of 150 ft.) Many have been attacked and more or less spoilt by treasure hunters. It would appear that they were originally ascended by zigzag staircases, were covered with stucco, and painted in bright colours. In many instances they have been coated with *adobes*, possibly by the Inca conquerors, who filled up the chambers, made a straight ascent, and erected stone temples to the sun on the top.

The district north and south of the present city of Trujillo contains very extensive remains of the old city or settlement of the Yunca population. They are known as Grand Chimu or Chan Chan, and cover an area of perhaps 12 by 6 miles. The city appears to have been built in self-contained sections or wards, each perhaps the residence of one clan (*ayllu*). Each ward has only one entrance; it contained courtyards, store-chambers, reservoirs, workshops, and sometimes a *huaca*; the rooms often had no door, and appear to have been approached along the top of the walls. Interesting ornamentation has been found. In some cases, the walls were plastered and covered with paintings; in others, the *adobes* were arranged in chess-board pattern, giving a honeycombed appearance, or, again, in diamond-shaped rows; in a few cases the stucco is cut in relief in bold but rude ornamental patterns, raised about an inch from the surface. These were painted in bright colours, producing a very rich, barbaric effect.

About 14 miles from Lima, in a side valley running down to the valley of the Rimac, is the ruined city of Cajamarquilla, a maze of complicated structures in three

groups ; there are no windows, and among several peculiar features may be noted the low doorways of diverse curious form (horseshoe, coffin-shaped, etc.), and the curious store-chambers in the floors, shaped like boxes or jars.

The ruins of Pachacamac are, perhaps, the most famous. They stand near the sea, on the right bank of the river Lurin, about 30 miles south of Lima. The buildings are partly of stone, partly of *adobe* ; some have been overthrown by earthquake and others lie buried in drifted sand. The city contained the shrine of the god Pachacamac, the Creator, "he who animates the universe." This shrine, originally adorned with immense wealth of gold and silver, was desecrated and despoiled by Hernandes Pizarro. There are two principal ruins : (1) "El Castillo," the Temple of Pachacamac, on a headland ; four-walled terraces enclose the shrine at the top ; the walls of the latter were originally stuccoed and painted, and perhaps had pilasters ; some have windows, and others niches. This, in the main, represents the worship of the earlier coast population. (2) The "Mamacuna," $1\frac{1}{2}$ miles away, on low ground near a lake. The materials are similar, but the niches, windows, and doorways are of the usual Inca type. These ruins represent a Temple of the Sun and a Convent of Virgins, and date from the Inca period. It may be mentioned that the inhabitants of such convents either became wives of the ruling Inca or chief nobles, or were offered in sacrifice to the sun, or were dedicated to perpetual virginity. One very remarkable feature in this group of ruins is the existence of a genuine segmental arch. The arch is very

rare on the coast and unknown in the highlands ; the failure of the early Peruvians, in spite of their bold and vast buildings, to evolve the arch may be ranked with their failure to invent an alphabet or system of writing. The arch would have been of immense service, not only in their buildings, but in bridging ravines for purposes of irrigation and road-making ; for lack of it, their canals had to be carried immense distances, if it were necessary to cross a valley.

The ground surrounding these ruins is a vast cemetery. From it, as from Chan Chan, and from many *huacas*, immense quantities of mummies (buried in Peru in a sitting posture), pottery, textiles, implements, and ornaments have been obtained.

HIGHLAND REMAINS.—The most important of the ruins in the highlands or Andean plateaux may be visited from two centres—Puno and Cuzco—both now accessible by the Southern Railway. A few isolated, but less important, sites are mentioned below.

EXCURSIONS FROM PUNO.—The town of Puno, on Lake Titicaca, is close to the boundary line between Peru and Bolivia. Tiahuanaco itself and several adjacent sites lie just across the border, in Bolivia. The boundary, however, is entirely artificial ; the whole of the Titicaca basin is essentially one in character and history ; and the sites are so important as forming the cradle of a great civilisation, that they cannot be omitted here.

Tiahuanaco. The ruins lie near the road to La Paz, about half a mile to the south of the village of Tiahuanaco. They have been surveyed by Stübel and Uhle, and more recent excavations were made by the Créqui-Montfort

expedition. There are three rectangular enclosures of differing size, the largest marked by great monoliths, which were formerly connected by a wall, and entered by a stairway of large monoliths. The small enclosure opposite the stairway has grotesque heads carved in relief on the columns. Within the large enclosure is the "most famous ruin in America," a great gateway cut from a single block of stone, 10 ft. by 12 ft. 6 in., and 1½ ft. in thickness; the doorway is 4 ft. 6 in. by 2 ft. 9 in. On one face a frieze of alternate sun-faces and meanders ending in condor-heads runs from end to end above the doorway. Over this is carved, in relief, a central figure, shown full-face, flanked by three rows of smaller figures in profile. On the other face, the doorway is flanked on each side by a doorlike niche, and the place of the frieze is occupied by two smaller niches on each side. The figures, bold and grotesque in design, have several noticeable features; the heads are disproportionately large and the legs truncated; the square-shaped head is surmounted by a head-dress with numerous rays terminating in circles and puma-heads; a ceremonial staff, single or double headed, is held in the hands, and the smaller profile figures are seen to have wings and tails, and those in the middle row have bird masks. All over are placed conventional ornaments of fish, serpent, condor, and puma heads. These reliefs appear to have been painted. The central figure is supposed to represent Viracocha, the supreme deity; possibly the smaller figures represent the three clans, worshipping in ceremonial and priestly dress. At some time unknown, the monolith has been broken, perhaps in being moved from

its earlier position ; but the two portions have been recently replaced in relation.

Other monolithic gateways, whole and broken, exist on the site, and some colossal statues have been found. In one spot are large numbers of worked stones, large and small, cut like puzzle blocks, with grooves and projections, and drilled with holes. This has been done with great precision, so that block could be fitted to block and fastened with metal rods and clamps. While much remains *in situ*, the place has been used as a quarry by builders of the neighbourhood (*e.g.*, for the village of Tiahuanaco, and for the cathedral, houses, and street paving of La Paz).

One of the unsolved mysteries of the place is the reason for the selection of the site as a sacred city or shrine. Tiahuanaco stands nearly 13,000 ft. above the sea, in a district not only cold, but barren. It can hardly have been the site of a great city, for a large population could only be maintained there by transporting food from a distance ; and there are no signs of any extensive ancient city.

Titicaca and Coati Islands. Off the peninsula at the south of Lake Titicaca, which extends almost across the lake, lie two islands—Titicaca and Coati—sacred respectively to the sun and to the moon. The larger, lying to the north of this peninsula, is Titicaca, where the founders of the Inca dynasty—Manco Capac, and his sister-wife, Mama Ocllo, children of the Sun—descended from heaven, and whence they started north to conquer and to civilise. High above the landing-place at Titicaca stands a platform backed by two chambers, separated by a narrow

passage. It was probably used in the initiatory rites necessary before the pilgrims to the sacred rocks were allowed to proceed thither.

Of the numerous interesting remains on the island, the following may be particularised : (1) The Pila or *Fountain of the Incas*, a rectangular basin, 40 ft. by 10 ft. by 5 ft., enclosed on three sides by walls of carefully-squared stone. It is half-way down a valley arranged in regular terraces, supported by niched walls, and planted with fragrant vegetation. The water, uniform in flow, enters the basin by four jets, and thence flows from terrace to terrace, to the lake.

(2) The *Palace of the Inca* stands on a beautiful terraced site facing the island of Coati. The ground floor chambers are covered by a primitive vaulting formed of overlapping stones ; the upper storey, approached from the exterior, was probably roofed with the elaborate thatching usual in Peru. The front here consisted of a oblong open-air chamber, flanked by two small rooms. The walls were covered with a yellow stucco, and the recesses of the doorways and niches coloured red.

(3) The so-called *Temple of the Sun*, standing on a high ridge or isthmus, and commanding fine views on both sides ; the high walls enclose levelled terraces, perhaps originally gardens.

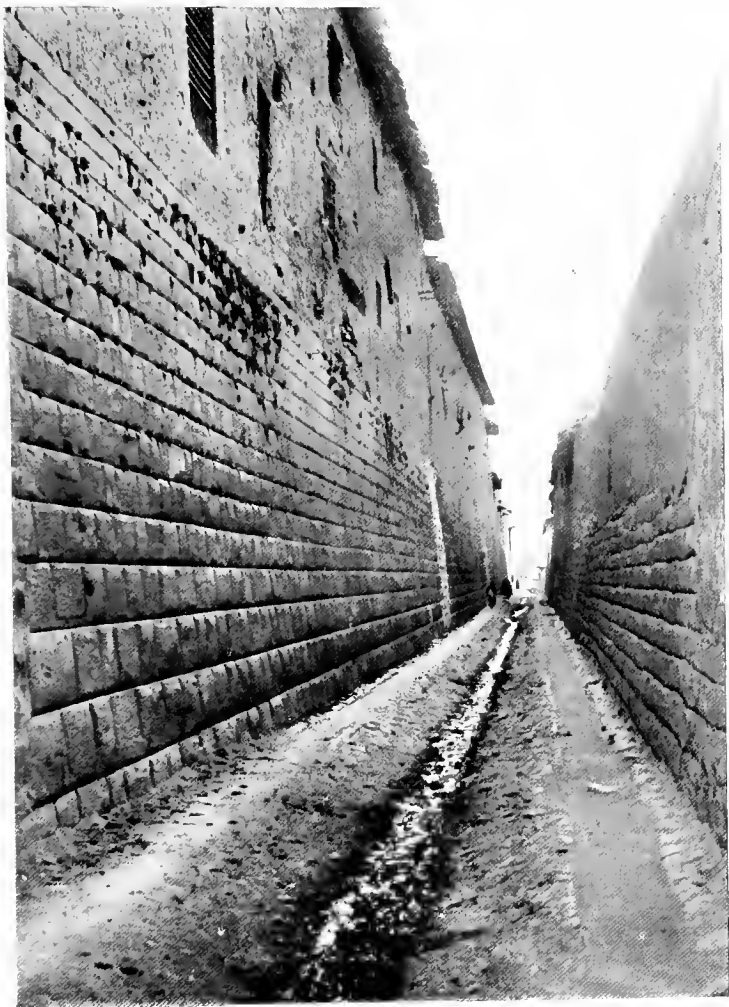
(4) The most sacred spot on the island lay near its northern extremity. This is the *Rock of Manco Capac*, a mass of red sandstone, some 25 ft. high, on the crest of a ridge. Here (according to the Inca tradition) the children of the Sun first alighted upon earth. In front is a wide platform surrounded by walls. The sacred soil

might only be trodden by special priests, no pilgrim being allowed to approach within 200 paces. The summit was plated with gold and silver, and covered, save on high festivals, with a rich mantle of the finest colours and materials. In the natural hollows of this rock the various offerings of the worshippers were deposited.

Much of the building on Titicaca island is assigned traditionally to the reign of Tupac Yupanqui, grandfather of Atahualpa (*i.e.*, between 1425 and 1470 A.D.).

Coati Island. The most important building on this island was the Acllahuasi, or Convent of the Virgins of the Sun. It is in good preservation and has several remarkable features, such as doorways and niches with "stepped" gables, recessed four or five stages deep; gable-ends fronting on the courtyard; and niches, sometimes pierced for window openings, of a peculiar shape. Two large chambers in the middle of the long side of the courtyard are conjectured by Squier to have been the shrines of the Sun and the Moon. The building stands high in the heart of a terraced amphitheatre facing north. Similar convents existed at Cuzco and Pachacamac.

Lake Umayo. This lake is about 15 miles north-west of Puno. It contains an island in the middle and a peninsula at the eastern end, called Sillustani. Here are to be seen several sun-circles of large, erect, uncut stones, enclosed within a platform of stepped and grooved cut stones. There are also a very large number of well-built circular towers, called "chullpas." These, though sometimes considered to be granaries, were probably mausolea for chieftains or their families. The more elaborate are faced with large hewn stones, domed, and



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A Street of the Incas in the old city of Cuzco

with a projecting cornice, and the diameter gradually increases from base to cornice. Two small entrances were made, one in the domical covering and one at the base. Internal arrangements vary greatly. In other parts of the country the *chullpas* are often square.

At *Hatuncolla*, 6 miles to the east of the lake, are two sandstone pillars, 7 ft. by 2 ft., and 10 in. thick, elaborately carved with geometrical and wavy patterns, and with figures of serpents, lizards, and frogs.

At *Cacha*, on the line to Cuzco, about half-way between Lampa and Cuzco, are numerous remains. The best known formed part of the famous Temple of Viracocha erected in honour of the god by the Inca of the same name. It has been largely destroyed, partly in the early hunt for treasure and out of hatred of heathen superstition, and partly in later times for the purpose of erecting churches and other buildings. The outer walls of hewn stone, have disappeared; the long and lofty ruined wall, 40 ft. high, familiar in the illustrations of books on Peru, ran down the middle of the building, from end to end; it has a stone foundation, 8 ft. high, surmounted by *adobe* bricks. On each side of it ran a row of pillars, and the whole supported an upper floor, now entirely vanished, where stood the sanctuary and statue of the god. There are numerous domestic buildings, regularly disposed as in a monastery or college, adjoining the temple.

On the way from Cacha to Cuzco, numerous ruins are to be seen at Quijana; great Inca quarries near Andahuaylas; a fortress or barrier at Piquillacta; a walled town at Muyna; and more ruins at the pass of Angostura.

Cuzco. The Inca city of Cuzco, or, at any rate, the part containing its great public buildings, was confined within a long, narrow tongue of land sloping down from the hill of Sacsahuaman, and enclosed by the two streamlets of the Rodadero and the Huatenay. Within this area the lower portion of the Inca walls have been largely retained by the Spaniards as foundations for their own structures, and they still define in great measure the streets and squares of the ancient city. The greatest and most magnificent building was the Temple of the Sun, rising above the terraced gardens of the Sun, which sloped down to the artificially widened waters of the Huatenay. This is now the site of the Friary of Santo Domingo. To the north-west was the Acllahuasi or Palace of the Virgins of the Sun, nearly 800 ft. by 200 ft. ; this is now occupied by the Convent of Santa Catalina. On either side were great palaces, of which the lower walls still survive in great part ; one of the finest specimens, 380 ft. long and 18 ft. high, faces the square of Pampa Maroni. The cathedral occupies the site of a covered hall ; the dominating site of San Cristobal was formerly that of the palace of the first Inca, of which a few remains survive.

Sacsahuaman. Above ancient Cuzco the ground rises precipitously in a line with the two streamlets before mentioned ; across this V-shaped acropolis run the three zigzag lines of cyclopean fortification, so stupendous as to strike the early Spanish chroniclers as worthy to rank with the seven wonders of the ancient world, and even to raise suspicions that it could only be the work of enchantment. It is, perhaps, a primeval stronghold,

older even than Cuzco itself. The lines are indeed wonderful. They ran for a length of some 1,800 ft. ; they have an average height of 27, 18, and 14 ft. respectively, and were planned with a parapet and platform or terrace behind ; and they were built with a succession of salient angles, so as to command the flanks of any attacking force. But what is most wonderful is the enormous size of the blocks of stone employed, and the accuracy with which their irregular angles are fitted together. One of these blocks is 27 ft. by 14 ft. by 12 ft., and "stones of 15 ft. by 12 ft. by 10 ft. are common in the outer walls." There were many other structures near, but these, being built of small hewn stones, were pulled down and the stone used for later Spanish building in the city. The "Seat of the Inca," cut in the rock, is noteworthy.

West of Cuzco lies *Chincho*, which contains a long terrace wall, niched and coped ; in the neighbourhood are great sculptured rocks, with a statue of a puma. The old road turns then to the north, descends 4,000 ft. into the valley of the Urubamba, and crosses the river to the sheltered fertile valley of *Yucay*, a favourite residence of the Incas, with a wonderful series of terraced *andenes* or gardens, each with its retaining wall. High up among these stood their Summer Palace, of which but scanty ruins survive. The road down the valley passes numerous rock-tombs in precipitous situations, and circular loopholed towers, finally leading to the famous fortified town of *Ollantaitambo*, the frontier town of the valley. Here, "in a climate of endless Spring," are to be seen extensive remains of a very typical Inca town,

planted at the foot of a narrow ravine and backed by mountains rising 9,000 ft. above the river. The ancient town was laid out in parallel streets; the houses, like monastic dwellings, were arranged in formal parallelograms, each group with its courtyards; there was a town square or piazza, a fortress, and a palace. Here, too, is a pillar supposed to be an "intihuatana" or gnomon of the sun, used for the observation of the equinox. The passes were all fortified and the river bridged. The precipitous slopes are still terraced with innumerable retaining walls. The principal fortress, terraced on lofty walls rising from the river, commanded the narrow passage which formed the approach from the Montaña—one of the four passes from the Amazon plain to the Andine region. Some of the megalithic work here is probably of the pre-Inca period; and some of the stones in the fortress are cut in slots and patterns resembling those of Tiahuanaco.

Pisac. Another ancient road from Cuzco leads first east and then north, down a valley; on the opposite side of the Vilcomayo (or Urubamba) stands Pisac. This place, like Ollantaitambo, guarded a pass leading from the *montaña*; and at both ends of the pass gigantic fortresses were built. The remains here are, perhaps, even more remarkable. Squier says: "Every rood of surface that can be terraced and cultivated is dedicated to agriculture; every avenue of ascent, except such as the engineers determined to leave open, is closed; every commanding and strategic spot is fortified. There is not a point to the very summit of the first peak which is not somewhere commanded, or somehow protected by a maze



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Entrance to a Temple

of works, which almost defy the skill of the engineer to plan, and which baffle description."

Among the religious remains at Pisac is a fine example of an "inti-huatana." A rock has been levelled at the top, giving an area, roughly circular, 18 ft. by 16 ft. In the centre has been left, in the living rock, a cone-shaped pillar, 16 in. high. The whole is surrounded by a wall of stones, faced on the outside and perfectly smooth, about 20 ft. high; this enclosure is shaped like a D. It is thought that the short pillar was surmounted at the proper season by a long gnomon; and also that the apsidal wall at the end of the church of St. Domingo at Cuzco enclosed originally the "inti-huatana" of the great sun temple there.

Below Ollantaitambo, in the same valley, are striking remains at Macchu Pichu and Rosas Pata.

ISOLATED SITES.—*Huánuco Viejo* is in the Province of Huamalies, 54 miles west of the modern town of Huánuco. The ruins apparently are those of a palace and a fortress. The palace contains a reservoir, a bath, a number of houses, and long walls, and three double doorways with niches and rude carvings; these doorways, at different sides of large courtyards, are all in a line. The fortress is 180 ft. by 80 ft.; it has walls of hewn stone 13 ft. high, with a projecting cornice.

At *Huantar*, in the valley of Chavin, near the Marañon, are a castle, numerous houses, and a bridge with carved heads in the corner pillars. From the castle a remarkable carved slab, 7 ft. long, has been removed, and is now in the Exhibition Park at Lima; other carved stones remain *in situ*.

A few words, in conclusion, may sum up the salient features of the highland architecture. The stone work, whether cyclopean, irregular-shaped, or of regular squared and smoothed blocks, is universally marked by extreme accuracy of fitting ; walls, windows, doorways, niches, have a marked inward slope ; circular building is not infrequent ; the stones are carefully measured and prepared for their places, cut to the requisite angles or radii ; the arch is unknown, as also was the use of glass (hence the paucity of windows) ; the buildings were frequently of two, or possibly more, storeys. The external effect was severe and monotonous, but powerful ; perhaps it was frequently relieved by the use of stucco and paint. Internally, the palaces and temples were adorned with thin gold and silver plates. The roofs seem to have been invariably of thatch, but this thatching was of a very elaborate and ornamental character. It is described by the early chroniclers ; and a specimen survived at Asángaro till quite recently.



Los Portales, Plaza Mayor, Lima

CHAPTER V

DEPARTMENTS, PROVINCES, AND DISTRIBUTION OF POPULATION

DEPARTMENTS.—Peru contains at present (omitting Tacna) twenty-two independent administrative divisions. These are usually known as departments, but three are, strictly speaking, not departments, but “littoral provinces.” Ten of these divisions are in the Coast region, viz., the seven departments of Piura, Lambayeque, La Libertad, Ancachs, Lima, Ica, and Arequipa, together with the three littoral provinces of Tumbes, Callao, and Moquegua. Eight departments belong to the Sierra region, viz., Cajamarca, Huánuco, Junín, Huancavelica, Ayacucho, Apurimac, Cuzco, and Puno. The Montaña at present contains four departments, viz., Amazonas, San Martín, Loreto, and Madre de Dios; but it will doubtless be further subdivided as its development proceeds. Tacna is now counted as part of Chile.

POPULATION.—The estimates of area and population given below can only be regarded as approximate. The area is uncertain, partly from the absence of an accurate survey, and partly from the difficulties attending frontier delimitation. As to the first, the great height and extent of the mountains, plateaux, and forests must long render accuracy impossible; much of the eastern part of Peru is even still unexplored. As to the latter, while the frontiers with Bolivia, Chile, and Brazil are now settled, those with Ecuador and Colombia are still in dispute.

The facts concerning the population are equally in doubt. According to the census of 1876—the last that has been taken—the total was 2,660,881, of which 300,000 was assigned, conjecturally, to the *montaña*. Estimates were prepared in 1896 and 1908, and certain municipal censuses have been taken from time to time.

The Civil States Registers, ordered on the promulgation of the Civil Code in 1852, and again on the establishment of municipal councils in 1873, have never been properly kept; and the Government recently ascertained “with veritable stupefaction” that no less than seventy-two municipalities keep no such registers of any description. Till recently, the Government held the total to be still under 3,000,000; the London Stock Exchange estimates it at 4,000,000; and the figures here adopted amount to about 3,600,000.¹

Of this total, about 800,000 belong to the Coast region, 2,360,000 to the sierra, and 400,000 to the *montaña*.

Omitting Callao, which stands in an exceptional position, the most populous department, judged by the proportion of inhabitants to area, is Cajamarca; next come Ancachs, Lambayeque, Lima, Huancavelica, and La Libertad; then Apurimac, Junín, Ayacucho, Piura, Tumbes; then Puno, Ica, Arequipa, Huánuco. The

¹ The Presidential Message to Congress on 5th Sept., 1913, while allowing for “war, revolutions, Indian uprisings, epidemics, and inhuman conduct of certain disorderly provincial elements” (as, *e.g.*, in the Putumayo region) takes a more favourable view, and holds that, in spite of all the uncertainties attending the calculation, the population of the republic at present approximates to 5,000,000. This gives an average of about 7.2 per sq. mile.

others have less than three per square kilometre (ten per square mile).

The constituent elements of the population are also very uncertain ; but the following proportions appear to be the best attainable : Pure Indians, 50 per cent ; *Mestizos* (*i.e.*, those of mixed white and Indian descent), 35 per cent. ; pure whites, 11 per cent. ; negroes (including *Zambos*, partly of negro and partly of native descent), 2 per cent. ; Asiatics (Chinese, Japanese, and descendants of mixed marriages), 2 per cent.

The Indian population of the uplands, known generically as *Cholos*, are Christians and largely Spanish-speaking, though they maintain their Quechua and Aymará dialects among themselves. The Indians of the tropical forest region in the east, known generically as *Chunchos*, are pagan and uncivilised ; they speak many different languages and enjoy no citizen rights.

Omitting Tacna, Arica, and Tarata, Peru contains 22 departments, 104 provinces, and 826 districts.

Amazonas, a Montaña department, has an estimated area of 13,940 square miles (36,122 sq. kiloms.), with a population of about 53,000, (*i.e.*, an average of under 1.5 per square kil. It is bounded on the north by Ecuador, on the west by Cajamarca, on the south by La Libertad, and on the east and north-east by Loreto. The department is composed of alternate mountain and valley, the mountains of the central cordillera, intersected by the deep valleys of the Marañon and its tributaries. The Marañon forms the boundary between Amazonas and Cajamarca for more than half the west side of the department, and then flows in a

north-east direction. It receives on the left bank the river Santiago, which divides Amazonas from Loreto, and on the right bank another river Santiago and the Chuchanga.

The capital is Chachapoyas, seat of a bishopric, and the industrial centre of the department.

The provinces are—

- (1) *Bongorá* (cap. Jumbilla) ;
- (2) *Chachapoyas* (cap. Chachapoyas) ;
- (3) *Luya* (cap. Lámud).

The department is largely covered by virgin forest, with rubber, coca, and the usual forest products ; agricultural products in the valleys include cacao, coffee, sugar, tobacco, cotton. Gold mines and placer gold exist, and rock salt is found at Chiliquin.

Ancachs or *Ancash*, a littoral department, is estimated to contain 16,562 square miles (42,908 sq. kiloms.), with a population of 317,000 (*i.e.*, an average of 7·5 per square kilometre). It is bounded on the west by the Pacific, on the north and north-east by La Libertad, on the east by Huánuco and Junín, and on the south by Lima. The department is very mountainous. On the coast are the ports of Santa, Chimbote, Samanco (on the Bay of Ferrol), Casma, and Huarnei. This region is watered by the rivers Santa, Nepeña, Casma, Huarnei, and Fortaleza, all of which, except the first, rise on the west of the cordillera and are dry for most of the year ; the intermediate portions of the coast are completely barren. The first river rises east of the Cordillera, and under the name of Huarás flows north-west through the long valley of the Callejon of Huarás. In the north of the department

it turns west and, after uniting with the Chuquisaca, takes the name of Santa, and passes through a deep gorge in the Cordillera to the Pacific. Its total length is about 180 miles. The valley of the Santa is extremely fertile, and rice and sugar plantations flourish. It is connected with the port of Chimbote by a railway running as far as Tablones, and intended ultimately to pass Carás, Yungay, Huarás, and Recuay. The capital is Huarás.

The provinces are—

Bolognesi (cap. Chiquián) ;

Cajatambo (cap. Cajatambo) ;

Huailas (cap. Carás) ;

Huarás (cap. Huarás) ;

Huari (cap. Huari) ;

Pallasca (cap. Cabana) ;

Pomabamba (cap. Pomabamba) ;

Santa (cap. Casma) ; and

Yungay (cap. Yungay).

The agricultural products of the department include sugar, rice, cereals, grapes, potatoes, maize ; Carás grows a special kind of potato, which matures in three months. The mineral wealth includes coal (anthracite, near Chimbote and Huarás ; bituminous, in many parts), petroleum, gold, copper, silver, quicksilver, antimony, cinnabar, lead, kaolin, clay, marble. There is a considerable amount of cattle rearing. Tanning and textile industries (mattings, carpets, blankets) are pursued in the towns.

Apurímac is a sierra department, estimated to contain 8,187 square miles (21,209 sq. kiloms.), with a population of 133,000, an average of 6·3 per square kilometre.

It is bounded on north and west by Ayacucho, on south by Ayacucho and Arequipa, and on east by Cuzco. It is a highland district, with great grazing grounds and forests, and is drained by the river Apurimac (which divides it from Cuzco) and the tributaries Tambobamba, Pachachaca, and Pampas, which flow to its left bank. The capital is Abancay.

The soil is fertile and, in addition to extensive rearing of cattle, sheep, and goats, there is a considerable production of cereals, sugar, rice, coffee, cocoa, maize, and potatoes. The mining includes gold, silver, copper, saltpetre. Woollen articles are manufactured, and a small amount of silk fabrics; the silkworm is cultivated near Abancay.

The provinces are—

- (1) *Abancay* (cap. Abancay);
- (2) *Aimaraes* (cap. Chalhuanca);
- (3) *Andahuailas* (cap. Andahuailas);
- (4) *Antabamba* (cap. Antabamba); and
- (5) *Cotabambas* (cap. Tambobamba).

Arequipa, a coast department, is estimated to contain 21,947 square miles (56,857 sq. kiloms.), with a population of 172,000, an average of three per square kilometre. It is bounded on the north by Ica, Ayacucho, and Cuzco; on the south-west by the Pacific; and on the east by Puno and Moquegua. The coast contains the minor ports of Chala, Atico, Ocoña, Camaná, Quilca, Islay, and the major port of Mollendo, the second largest in the republic. The coast has numerous rivers, the Acari, Atiquipa, Atico, Pescadores, Ocoña, Manga, Mages, and Vitor; the north is watered by the Apurimac and its

tributaries. The south-east of the department is traversed by the Southern Railway of Peru, connecting Mollendo, via Arequipa, with Cuzco, Puno, and La Paz. The capital is Arequipa, one of the leading cities of Peru, seat of a cathedral, a superior court, and a university, and an important manufacturing and commercial centre.

The provinces are—

Arequipa (cap. Arequipa) ;

Cailloma (cap. Cailloma) ;

Camaná (cap. Camaná) ;

Castilla (cap. Aplao) ;

Condesuyos (cap. Chuquibamba) ;

Islay (cap. Mollendo) ; and

La Union (cap. Cotahuasi).

Cotton, sugar, olives, and grapes are grown in the valleys ; and maize, potatoes, and cereals in the uplands. The mineral products include gold, silver, copper, lead, coal, sulphur, manganese, rock-salt, borax, gypsum, alum, kaolin clay ; silver is produced in considerable quantity in Cailloma. Most of the manufactures of the country are represented at Arequipa, including textiles, hide-dressing, brewing, and engineering.

Among the physical features of the department may be mentioned the shifting, crescent-shaped sand dunes of the Pampa or Desert of Islay, which lies at a mean elevation of 4,000 ft.

Ayacucho, an extensive sierra department, is estimated to contain 18,185 square miles (47,111 sq. kiloms.), with a population of 227,000—an average population of 4.8 per square kilometre. It is bounded by Huancaavelica and Ica on the west, Arequipa on the south and south-east,

and Apurimac and Cuzco on the east. It is mainly a district of high plateaux, watered by the Apurimac (which forms much of its eastern boundary) and its tributaries, especially the Pulperia. In the south is Lake Parinacocha, 12 miles long by 6 miles broad. (The capital is Ayacucho.)

The provinces are—(1) *Ayacucho* (cap. Ayacucho); (2) *Cangallo* (cap. Cangallo); (3) *Huanta* (cap. Huanta); (4) *La Mar* (cap. San Miguel); (5) *Lucanas* (cap. Puquio); and (6) *Parinacochas* (cap. Coracora).

Cattle and a hardy type of sheep are extensively bred; cereals, maize, potatoes, sugar, grapes, with a little coffee, cotton, and cocoa are grown. The gold mines are mostly abandoned, but the Lucanas district is rich in silver; nickel, cobalt, copper, manganese, sulphur, and asphalt occur. The industries include woollen textiles, sugar, wine, and alcohol manufactures.

Cajamarca, a northern sierra department, is estimated to contain 12,540 square miles (32,482 sq. kiloms.), with a population of 333,300—an average of 10·2 per square kilometre. It is bounded on the north by Ecuador; on the west by Piura, Lambayeque, and La Libertad; on the south by La Libertad; and on the east by Amazonas. The department is watered by the Marañon (which forms nearly the whole of its eastern boundary) and by tributaries entering it from the west. The south-west has communication with the port of Pacasmayo by a railway, which is intended to extend to Cajamarca. The capital is Cajamarca, on the river Camarca, a tributary of the Marañon. It is one of the chief industrial centres of the inter-Andean district, and is notable for its Inca ruins

and as the scene of the capture of Atahualpa in 1532.

The provinces are—(1) *Cajabamba* (cap. Cajabamba); (2) *Cajamarca* (cap. Cajamarca); (3) *Celendín* (cap. Celendín); (4) *Chota* (cap. Chota); (5) *Contumazá* (cap. Contumazá); (6) *Hualgayoc* (cap. Hualgayoc); (7) *Jaén* (cap. Jaén de Bracamoros).

The highlands are favourable to the breeding of cattle and a hardy type of sheep. The cultivated valleys produce cereals, coffee, and sugar; gold, silver, coal, copper, and other minerals are found.

Callao was constituted a littoral province in 1836, and a "constitutional" province in 1857, in commemoration of its repeated defence of the constitution of the republic. It extends from the river Rimac on the north to the Mar Brava on the south, with an area of $14\frac{1}{2}$ square miles (37 kil.); its population is 35,000, of whom about one-tenth are foreigners. In addition to the city of Callao (for which, see *List of Towns*), it includes the wards or *barrios* of Bellavista and La Punta, and the islands of San Lorenzo, Fronton, and others off the coast. Stone is quarried on San Lorenzo, and the island is used as a depository for explosives.

Cuzco, the largest sierra department, is estimated to contain 89,447 square miles (228,985 kiloms.), with a population of 300,000, or 1.3 per square kilometre. These figures are much smaller than those formerly given, owing to the recent creation of a new Montaña department, viz., Madre de Dios (*q.v.*) and certain cessions of territory to Bolivia and Brazil. Cuzco is bounded on the north by Loreto and Brazil; on the west by Junín, Ayacucho, and

Apurimac ; on the south by Arequipa ; and on the east by Puno and Madre de Dios. It is watered (1) by the Apurimac (which forms almost the whole of its boundary) and its tributaries ; (2) by the Urubamba, which takes the successive names of Vilcamayo, Yucay, Santa Ana, Urubamba, Quillabamba ; (3) by the Paucartambo ; (4) by the upper waters of the Purus, Madre de Dios, and other rivers of western Brazil. These last flow eastwards ; the others have a general north-westerly direction.

Cuzco (the city) and the south of the department are connected by the Southern Railway with Mollendo, Puno, and La Paz.

The capital is Cuzco, the former metropolis of the Inca empire ; the whole neighbourhood contains numerous remains of great archaeological importance. (For modern Cuzco, see the *List of Towns* ; it is an important manufacturing and commercial centre.)

The provinces are twelve in number, viz. : (1) *Acomayo* (cap. Acomayo) ; (2) *Anta* (cap. Anta) ; (3) *Calca* (cap. Calca) ; (4) *Canas* (cap. Yanaoca) ; (5) *Canchis* (cap. Sicuani) ; (6) *La Convención* (cap. Santa Ana) ; (7) *Cuzco* (cap. Cuzco) ; (8) *Chumbivilcas* (cap. Santo Tomás) ; (9) *Paruro* (cap. Paruro) ; (10) *Paucartambo* (cap. Paucartambo) ; (11) *Quispicanchi* (cap. Urcos) ; and (12) *Urubamba* (cap. Urubamba).

Agriculture is the chief industry, coffee, sugar, cocoa, and coca being produced ; the best coffee district in Peru is that of Paucartambo and Chancamayo, and cocoa of exceptional quality is grown for the home market. There are large sugar plantations in the valleys

of the Urubamba and Paucartambo, and the province of Urubamba produces the finest coca.

Mining is only done on a small scale ; gold is mined in the provinces of Cuzco and Paucartambo, and is found in alluvial deposits in the latter province and in Quispicanchi. Copper, coal, iron, and many other minerals exist, the greatest variety being in Canas province. Cattle and wool-bearing animals are bred, especially in Canchis.

There is a large home industry in weaving and knitting ; for the manufactures, centred at Cuzco, see under *Cuzco* in the *List of Towns*.

Huancavelica, a central sierra department, is estimated to contain an area of 9,250 square miles (23,967 sq. kiloms.), with a population of 167,840—an average of 7·2 per square kilometre. It is bounded on the north by Junín ; on the west by Lima ; on the south by Ica ; and on the east by Ayacucho. It is watered in the north by the Mantaro and its tributaries, and in the south by the upper waters of the rivers of Ica, the Chíncha, Ica, and Grande. In the high Andes occur the Lakes of Choclococha and Orcococha. There is, as yet, no railway communication, though the Central Railway approaches its north-east boundary at Huancayo. There are several thermal springs.

The capital is Huancavelica, in the northern half of the department.

The provinces are as follows : (1) *Angaraes* (cap. Lircay) ; (2) *Castroverreina* (cap. Castrovirreina) ; (3) *Huancavelica* (cap. Huancavelica) ; and (4) *Tayacaja* (cap. Pampas.)

There is a certain amount of agriculture, cattle-raising,

and weaving in this department, but its great wealth lies in its mineral resources. Gold, silver, copper, and quicksilver occur in abundance ; and coal, petroleum, salt, saltpetre, cinnabar, and lead also occur. Near the capital, mining and smelting of gold, silver, and quicksilver form the chief industries. The quicksilver mines of Huanavelica have been famous since their opening in 1566, and were one of the chief source of Spanish wealth during the Colonial period. The old workings lie buried under a vast fall of earth, and the ore, though still extracted, is on a far smaller scale than of old.

Huánuco, a central sierra department, is estimated to contain 14,024 square miles (36,331 sq. kiloms.), with a population of 109,000—an average of 3 per square kilometre. It is bounded by Loreto to the north and east, by Ancachs to the west, and by Junín to the south. It lies like a saddle over the central and eastern Cordillera, and is watered by the Ucayali (which forms its eastern boundary), the Pachitea, the Huallaga, and the Marañon, which rises in Lake Lauricocha in the south-west of the department. The first two are navigable, and the “central” route from Lima to Iquitos via rivers Pichis, Pachitea, and Ucayali passes through this department. The capital is Huánuco, on the Upper Huallaga : the seat of a bishopric.

There are three provinces, viz., (1) *Dos de Mayo* (cap. La Unión) ; (2) *Huamalies* (cap. Llata) ; and (3) *Huánuco* (cap. Huánuco.)

Agricultural products include cereals, maize, potatoes, coffee, sugar, cotton, tobacco, and coca. Cattle, sheep, and pigs are bred. The mountains are rich in gold,

silver, and quicksilver ; while coal, iron, and copper also occur.

Ica, a coast department, estimated to contain an area of 8,718 square miles (22,586 sq. kiloms.), with a population of 68,200—an average of three per sq. kilometre. It touches the department of Lima on the north ; and is bounded on the east by Huancavelica and Ayacucho, on the south by Arequipa, and on the west by the Pacific.

Formerly a province of Lima, Ica was made an independent province in 1855 and a department in 1868. It is watered by the Chincha, Pisco, Ica, and Grande, which flow from the Cordillera to the Pacific. Near Ica are the Lakes of Huacachina and Cachiche, noted for therapeutic properties. The valleys are extremely fertile, and there is much good land still uncultivated that only needs irrigation. The capital is Ica, which is connected by railway with the port of Pisco.

Ica is divided into the three provinces of (1) *Chincha* (cap. Chincha Alta) ; (2) *Ica* (cap. Ica) ; and (3) *Pisco* (cap. Pisco).

The chief products of the department are agricultural, viz., grapes and other fruits, sugar-cane, and cotton ; maize, bird pepper (*aji*), divi-divi, and cereals (including alfalfa or lucerne) are also grown. Wine-making and alcohol distilling are flourishing industries, as is also sugar-refining ; there is some textile manufacture and bee-keeping. Copper, salt, coal, iron, marble, gypsum, and clays exist, but are not as yet much worked.

Junín, a central sierra department, is estimated to contain 23,350 square miles (60,484 sq. kiloms.), with a population of 305,700—an average of five per square

kilometre. It is bounded by Huánuco on the north ; by Ancachs and Lima on the west ; by Huancavelica on the south ; and by Loreto, Cuzco, and Ayacucho on the east. It possesses three well-marked districts : the West, traversed by the main Andean range, is rich in minerals ; the Central portion is a land of high plateaux, suited for grazing and agriculture ; the East sinks to the valley of the Ucayali (its boundary from Loreto), and displays the tropical vegetation of the Montaña. Just south of Cerro de Pasco lies Lake Junín or Chinchaycocha, 36 miles long by 7 miles wide, the second largest lake in Peru ; it is 13,322 ft. above sea-level. In the neighbourhood the Spanish army was defeated in August, 1824, by the national army under Bolivar.

Junín contains the head waters of some important rivers of the Amazon basin. The Marañon rises near the boundary with Huánuco. The Jauja flows in part from Lake Junín, and assumes later the names of Mantaro, Ene, Tambo, and finally Ucayali ; it forms the boundary of the department on the east. Among the lesser rivers are the Perene, which flows east and joins the Ene ; and the Palcazu and Pichis, which unite to form the Pachitea of Huánuco.

The Central Railway runs from Callao and Lima to Oroya, and then south-east to Huancayo ; a branch from Oroya extends to Cerro de Pasco and Goyllarisquizga. Another line is projected to connect Cerro de Pasco with the Ucayali, and so by river navigation with Iquitos. Meantime the "Central" route from the latter town passes *via* the river Pichis through south-east Junín to Oroya. The capital is Cerro de Pasco. (See *List of Towns.*)

The provinces are as follows : (1) *Huancayo* (cap. Huancayo) ; (2) *Jauja* (cap. Santa Fé de Jauja) ; (3) *Pasco* (cap. Cerro de Pasco) ; and (4) *Tarma* (cap. Tarma).

The products vary with the physical zones mentioned above. The immense mineral wealth, chiefly exploited by the American mining companies of Cerro de Pasco and Morococha, embrace silver, copper, lead, vanadium, with gold, coal, salt, cinnabar, marble, and phosphates of lime. The supply of vanadium has grown largely since its discovery in 1904, and is now about 70 per cent. of the world's output. Smelting is carried on extensively.

The plateaux have large stocks of cattle and wool-bearing animals ; there is a great sheep ranch at Atocsayo, 30 miles north of Oroya. Cereals, maize, and potatoes are grown. Snow-cured meat (*chalonga*) is made.

In the tropical east of the department are coca plantations, coffee (especially in the Perene valley), sugar, cocoa, and fruit.

The handicrafts include woollen textiles and hats.

Lambayeque, a small coast department, estimated to contain an area of 4,614 square miles (11,952 sq. kiloms.), with a population of 93,000—an average of 7.25 per square kilometre. It is bounded by Piura on the north, Cajamarca on the east, La Libertad on the south, and the Pacific on the west. It contains the ports of Eten and Pimentel, with the cove (*caleta*) of Cherrepe, and is watered by the small rivers Morrope, Lambayeque, and Sana. The railways are : (1) Eten to Lambayeque and Ferreñape ; (2) Eten to Cayalti ; (3) Pimentel to Lambayeque ; and (4) Chiclayo to Patapo. The capital (formerly Sana or Santiago de Miraflores) is now Chiclayo.

There are only two provinces, viz., Lambayeque and Chiclayo, with capitals respectively of the same names.

The department is almost entirely agricultural, producing rice, sugar-cane, cotton, coffee, and cereals. There is a little gold mining, and manufactures of hats, *ponchos*, cotton and thread-piece goods, saddle bags, and alcohol.

Guano is produced from the Lobos Islands, off the coast.

Libertad, La, a coast department, estimated to contain an area of 10,206 square miles (26,441 sq. kiloms.), with a population of 188,000—an average of seven per square kilometre. It is bounded on the north by Lambayeque and Cajamarca, on the east by Loreto, on the south by Ancachs; and on the west by the Pacific. It is watered by the rivers Jequetepec, Chicama, Moche, Virú, Chao, and Santa, the last-named forming the boundary with Ancachs. It contains the seaports Pacasmayo, Huanchaco, and Salaverry. The railways are: (1) Pacasmayo to Chilte, with a branch to Guadalupe; (2) Salaverry to Trujillo, Chicama, and Ascope, with branches Trujillo-Menocucho, and Chicama-Cartavis; (3) a private sugar-line from Huanchaco to the hacienda of La Roma. The capital is Trujillo.

There are six provinces, viz.: (1) *Huamachaco* (cap. Huamachaco); (2) *Otusco* (cap. Otusco); (3) *Pacasmayo* (cap. San Pedro de Lloc); (4) *Patás* (cap. Tayabamba); (5) *Santiago de Chuco* (cap. Santiago de Chuco); (6) *Trujillo* (cap. Trujillo).

The coast provinces produce sugar-cane, rice, coca, and coffee; higher up, cereals, maize, and potatoes. The

manufactures include *ponchos*, carpets, and cotton textiles. In the sierra, gold, silver, tin, and coal are found.

There are many remarkable remains at Trujillo and on the neighbouring coast, proving the existence of the large population and ancient civilisation known by the name of Chimú. Ruins of the pre-Inca city of Chan Chan exist, with a large necropolis, which has yielded quantities of textile fabrics, pottery, weapons, and objects of art, dating back possibly some 7,000 years.

Lima, a central coast department, is computed to contain an area of 13,310 square miles (34,482 sq. kiloms.), with a population of 250,000—an average of 7·3 per square kilometre. It is bounded on the north by Ancachs, on the east by Junín and Huancavelica, on the south by Huancavelica and Ica ; and on the west by the Pacific. It is a mountainous district, with numerous fertile river valleys, of which the principal are those of the Barranca or Pativilca, Supé, Huauro, Chancay, Carabayllo, Rimac, Lurin, Mala, and Cañete. It contains the major port of Callao, and the minor ports of Supé, Huacho, Chancay, Ancon, and Cerro Azul. The Central Railway of Peru runs east from Callao and Lima to Oroya in Junín ; short branches run from Lima north to Ancón and Huacho, and south to the watering-places of Chorrillos, Magdalena, Miraflores, and Barranco ; a short branch from Tielio runs to the copper mines of Morococha.

The capital is Lima, which is also capital of the republic. (For this city, see the *List of Towns*.)

The provinces are six in number, viz. : (1) *Cañete* (cap. Cañete) ; (2) *Canta* (cap. Canta) ; (3) *Chancay* (cap.

Huacho); (4) *Huaro-chiri* (cap. Matucana, a popular mountain resort); (5) *Lima* (cap. Lima); and (6) *Yauyos* (cap. Yauyos).

The fertile valleys produce sugar-cane (chiefly in Cañete); cotton, including the "Sea Island" variety (in Supe, Huacho, and Cañete); coca (in Yauyos); grapes; and vegetables. Cereals, maize, and potatoes are grown on higher ground. The mountains provide pasturage for cattle and wool-bearing animals, and are also rich in minerals; gold, silver, copper, coal, sulphur, chalk, ochre, clay, alum, lead, cinnabar, bismuth, antimony, rock crystal are all found. Mattings, woollen textiles, hats, stringed meat, wines, oil, sugar, and many other industries exist. (For details of the manufactures, see *Lima* and *Callao* in the *List of Towns*.) South of Lima lie the ruins of the great "Chimu" temple of Pachacamac—"He who gives life to the Universe"—an *adobe* erection of vast extent, now fallen into heaps of formless rubbish.

Loreto, the chief Montaña department, is estimated to contain an area of 172,059 square miles (440,471 sq. kiloms. with a population of 120,000—an average of 0.27 per square kilometre. The Montaña territory was assigned at the time of the Independence as a province of the Intendencia of Trujillo, under the name of Mainas. Later it became a province of La Libertad, then of Amazonas, in 1853 an independent "littoral" province," and finally a military department. In 1906 the western portion was formed into the new department of San Martín. The eastern boundary with Brazil is now settled, but the northern frontier line with Ecuador and

Colombia is still in dispute. The capital, originally Moyobamba, is now Iquitos, the only town of any size. (See *Iquitos*, in *List of Towns*.)

The department is bounded on the north by Ecuador and Colombia, on the west by San Martín and La Libertad, on the south by Huánuco, and on the east by Brazil.

The chief river in the east of the department, the Ucayali, joins the Marañon at Nauta; the eastern boundary is for a long distance formed by the Javary. On the north, the Marañon is joined by many tributaries of considerable size; the most important at present are the Napo and the Putumayo.

There are no railways and few roads; on the other hand, the navigable waterways afford communication by steamers of light draught, and by canoes.

The provinces are: (1) *Alto Amazonas* (cap. Yurimaguas); *Bajo Amazonas* (cap. Iquitos); and *Ucayali* (cap. Contamana).

There are minor river ports at Yurimaguas, on the Huallaga; Contamaná, on the Ucayali; Nazareth, on the Javary; and Caballo Cocha, below Iquitos, on the Amazon. Others are being developed at Leticia, Nauta, Requena, and Orellana.

(For the products, see the Chapters on *Flora* and *Forest Products*.)

The only commercial product of any importance at present is rubber; next comes vegetable ivory. Colonisation is being attempted on the rivers Pisqui and Aguatia. Development is slow at present, means of communication scanty, and difficulties of climate, etc., very great. But

there is no doubt about the exceptional fertility of the soil and the future possibilities of this region.

At present, the communication between Loreto and the coast of Peru is carried on by river and road. There are two main routes: (1) By Amazon to Puerto Borja, and thence via Huancabamba and Piura to Paita; (2) by rivers Ucayali, Pachitea, and Pichis, then by road to Oroya, and by railway to Lima and Callao.

The northern railway from Paita to P. Borja, though long mooted, has been delayed for strategic reasons, as it would pass very near the Ecuadorian frontier. It is more likely that the first railway connection will be from Cerro de Pasco to the Ucayali.

Madre de Dios, a Montaña department created in December, 1912, is estimated to possess an area of 25,500 square miles (64,112 sq. kiloms.), with a population of about 16,000—an average of 0.25 per square kilometre.

The department consists of area formerly assigned to Cuzco and Puno, but in dispute with Bolivia; it is now definitely a part of Peru. The capital is Maldonado, on the left bank of the river Tambopata at its junction with the Manu.

The three provinces are: (1) *Manu* (cap. Puerto Manu); (2) *Tahuamanu* (cap. Tahuamanu); and (3) *Tambopata* (cap. Puerto Maldonado).

(For the forest products, see the Chapters on *Flora* and *Forest Products*.)

The district is largely unexplored, and for the moment is of no commercial importance. Its development, however, may possibly be rapid. A Government colony of

repatriados from Chile has been planted here ; rubber and mining concessions have been granted to British companies ; and a railway line projected from Tirapata, on the Cuzco line, to the Madre de Dios river.

Gold and silver exist (including placer gold).

Moquegua is a littoral province, containing an estimated area of 5,550 square miles (14,375 sq. kiloms.), with a population of 32,000—an average of 2·3 per square kilometre.

It is bounded on the north-west by Arequipa, north-east by Puno, south by Tacna, and south-west by the Pacific. It contains the port of Ilo, and is watered by the rivers Tambo, Moquegua, and Locumba. There is a railway from Ilo to Moquegua, which is the centrally situated capital.

The agricultural products are olives, grapes, figs, cereals, and maize. Wine and brandy are made. There is little mining at present, but coal, tin, manganese, copper, salt, sulphur, borax, gypsum, and marble are known to exist in quantity.

A recent loan for irrigation and colonisation is expected to aid greatly in the development of the province. The soil is well adapted for growing vines and olives, but much of the coast district has hitherto been desert from lack of water supply.

Piura, the northernmost coast department, is estimated to contain 16,825 square miles (38,458 sq. kiloms.), with a population of 155,000—an average of four per square kilometre. It is bounded by Ecuador on the north, by the Pacific on the west, by Cajamarca on the east, and by Lambayeque on the south. The chief rivers are

the Chira and the Piura ; the Chira can be ascended for 40 miles from the mouth in large canoes. Parina Point ($81^{\circ} 19' W.$) is the westernmost extremity of South America.

The capital is St. Miguel de Piura, from which starts an overland route to Puerto Borja on the Amazon (via Vicus, Huancabamba, Perico, and Nazareth), and the only railway in the department (via Sullana to the port of Paita).

The other chief towns are Paita on the coast and the capitals of provinces (mentioned below) inland.

The department is subdivided into four provinces, viz. : (1) *Ayabaca* (cap. Ayabaca); (2) *Paita* (cap. Paita); (3) *Piura* (cap. Piura); and (4) *Huancabamba* (cap. Huancabamba).

The coastal area includes among its most valuable products, pitch and petroleum ; sulphur, mica, borax ; salt and saltpetre ; and cotton. The best grades of Peruvian cotton are grown in this department and shipped from Paita. The upland districts afford pasturage for cattle ; the province of Huancabamba is noted for its superior quality of wool ; while the goat and kid skins possess unusually fine texture, flexibility, and softness. Gold is mined in the sierra. The east of the department extends to the head waters of the Amazon, and contains the coffee, sugar-cane, and tobacco usual in the tropical forest or *montaña* region. The chief industries are cotton-textiles, distilling, soap, candles, and straw hats.

Puno, a southern sierra department, is estimated to contain an area of 27,979 square miles (71,627 sq. kiloms.),

with a population of 270,000—an average of 3·8 per square kilometre. It is bounded on the north by Cuzco ; on the west by Cuzco, Arequipa, and Moquegua ; on the south by Chile ; and on the east by Bolivia. It includes the northern half of Lake Titicaca, the high plateau in which the lake stands with the mountains enclosing it on west, north, and east ; the “ knot ” of Vilcanota, on the borders of Puno and Cuzco, forms the watershed dividing the Amazon basin from the enclosed lacustrine basin of Titicaca.

The northern portion of the old department has been taken away (in 1912) to form part of the new department of Madre de Dios (*q.v.*).

The capital is Puno, for which see *List of Towns*.

The department is connected by the Southern Railway with both Cuzco and Mollendo ; and by steamer and railway with La Paz in Bolivia.

The provinces are : (1) *Ayaviri* (cap. Ayaviri) ; (2) *Asángaro* (cap. Asángaro) ; (3) *Carabaya* (cap. Macusani) ; (4) *Chucuito* (cap. Juli) ; (5) *Huancané* (cap. Huancané) ; (6) *Lampa* (cap. Lampa) ; (7) *Puno* (cap. Puno) ; and (8) *Sandia* (cap. Sandia).

The products are various and important : cattle and sheep are bred, and the wool of the alpaca and vicuña largely exported. Potatoes, barley, and a few other crops are grown. Silver was formerly extracted in great quantity ; to-day this is surpassed by the output of gold, which is about 70 per cent. of that produced in the country, and comes mainly from Sandia and Carabaya. Coal, salt, copper, antimony, cinnabar, arsenic, quick-silver, tin, marble, zinc, cobalt are also found. Petroleum

and naphtha exist near the town of Puno. There is a considerable manufacture of pottery at Lampa, and of woollen textiles.

San Martín, a northern Montaña department, is estimated to contain 30,745 square miles (79,625 sq. kiloms.), with a population of 33,000—an average of 0·4 per square kilometre. It is bounded on the east and south by Loreto, on the west by Amazonas, and on the north by Ecuador. It was formed in September, 1906, being carved out of the north-west of Loreto. It is watered by the Huallaga and its tributaries in the east side of the department, and by the Marañon and Pastaza in the north. The capital is Moyobamba.

The provinces are *Huallaga* (cap. Saposoa); *Moyobamba* (cap. Moyobamba); and *San Martín* (cap. Tarapoto).

The products are as yet scanty. Cacao has been planted with success; and bananas, sugar, coffee, tobacco, yuca, and coca are grown. Gold, silver, coal, iron, and sulphur exist. The manufactures include sugar, aguardienta (rum), textiles, matting, and straw hats. The trade passes through the river port of Yurimaguas (on the Huallaga), a rising town, about 500 miles above Iquitos.

Tacna, south of the rivers Sama and Tarata, with its three provinces of Arica, Tacna, and Tarata, is now part of Chile, and should no longer be counted among the departments of Peru. The part north of the above-named rivers has, since 1884, had Locumba for its provisional capital; it will probably be added to the department of Moquegua.

Tumbes, formerly a province of Piura, was declared

by the law of 20th December, 1901, an independent "littoral province," in view of its extent and its position on the frontier with Ecuador. It is administered by a prefect, and enjoys the other privileges belonging to a department; it is distinguishable, however, from a true department in being divided into districts instead of provinces. It lies between the Pacific, Ecuador, and the Department of Piura, and has an area of 1,990 square miles (5,130 sq. kiloms.), with a population of 8,000—an average of four per square kilometre. The capital is Tumbes, standing 16 miles from the mouth of the river of the same name.

The province is divided into the four districts of Corrales, San Juan de la Virgen, Tumbes, and Zarumilla.

In 1531 Pizarro landed at the old mouth of the river Tumbes. Here, at one time, stood a stately temple and palace of the Incas, now completely destroyed. The petroleum springs of the Zorritos district were used by the Incas. Since 1864, and especially since 1883, considerable attention has been given to their development. Over 300 wells have been sunk in this district, 60 in the Punta Lobitos district, and 250 in the Negritos district. Refineries have been built at Tumbes, Zorritos, and Talara; and an annual produce of about 1,500,000 barrels is given. From Negritos to the port of Talara (a distance of 6 miles) the oil is conducted by a 6-inch pipe.

Sugar, tobacco, coffee, and cocoa, are also produced in the district; sulphur, cobalt, coal, salt, and iodine are found; and sugar, kerosene, alcohol, and aniseed rum are manufactured. Both the home and the international trade are growing rapidly.

CHAPTER VI

CONSTITUTION—GOVERNMENT—DEFENCE

CONSTITUTION.—Peru is an independent republic of the centralised, not the federal, type. The Constitution was originally drawn up in 1822, and fresh schemes were passed during the early revolutionary period in 1828, 1833-4, and 1839. The existing Constitution was promulgated in October, 1856, and revised in November, 1860. The people are declared free and sovereign, controlling legislation and government through their freely-elected representatives. All citizens are equal in the eyes of the law. Voting power is entrusted to every Peruvian male citizen over twenty-one years of age, who is either married, or a master employer, or an owner of real property, or a taxpayer, or able to read and write.

GOVERNMENT.—This is dealt with under : (1) National ; (2) Local Administration. The former comprises the three independent branches of (*a*) the Legislature ; (*b*) the Executive ; and (*c*) the Judiciary.

I. NATIONAL ADMINISTRATION

(*a*) The *Legislature* consists of the National Congress, comprising the Senate (52 members), and the House of Representatives (116 members). The members of both houses are elected by direct vote for a period of six years ; every two years one-third of each Chamber, as decided by lot, retires.

Senators must be Peruvians by birth, over thirty-five

years of age, and must possess an income of £100 a year, or belong to a scientific profession. They are elected in the proportion of four senators for each department of eight, or more than eight, provinces; three for each department containing five, six, or seven provinces; two for each department with two, three, or four provinces; one for each department of one province only (this includes Callao).

Representatives must be Peruvians by birth, over twenty-five years of age, and must possess an income of £50 per annum, or belong to a scientific profession. They are elected in the proportion of one for each 30,000 inhabitants or fraction exceeding 15,000.

Congress meets annually on 28th July for a session not exceeding ninety days; extraordinary sessions may be called for periods not exceeding forty-five days.

(b) The *Executive* power is entrusted to a President, who exercises his functions through a Cabinet of six ministers holding office at his pleasure. The President is elected for a period of four years, and may not be re-elected until after an interval of four years. There are two vice-presidents, who take his place only in case of his death or incapacity. The President and Vice-Presidents are elected by direct vote. The six Ministers are those of the Interior: War and Marine; Foreign Affairs; Justice, with Worship and Education; Finance; and Public Works ("Fomento"). No act of the President is valid unless countersigned by a minister.

(c) The *Judiciary* consists of a series of tribunals and magistrates. The Supreme Court, whose members are nominated by Congress from lists presented by the

Executive, sits at Lima. Nine superior courts sit at Arequipa, Ayacucho, Cajamarca, Cuzco, Huarás, Lima, Piura, Puno, and Trujillo ; their members are nominated by the President on the recommendation of the Supreme Court. Courts of first instance sit in the capitals of the provinces, with resident judges ; their members are nominated by the President on the recommendation of the Superior Courts. Justices of the Peace reside in the districts.

II. LOCAL ADMINISTRATION

The country is divided into a number of departments ; each department into smaller divisions, called provinces ; and each province into districts. Each department is governed by a Prefect, and each province by a sub-prefect ; these are State officials, appointed by the Executive. The districts are in charge of minor officials, called Gobernadores, appointed by the prefects ; they are assisted by Alcaldes, generally chosen from the Indian population.

Each department, province, district, and municipality has its council,¹ dealing with such subjects as police, public health, road-making, lighting, and the support of art and industry. By law of 1892, foreigners are eligible as members of municipal, district, and provincial councils.

It will be seen from the above description that the Peruvian Constitution is logical, complete, and, in theory, highly democratic. In practice, it is less democratic than would at first sight appear, since the great majority of the native inhabitants are still illiterate and not possessed of real estate. These defects, however, and

¹ Municipal Councils date from 1873.

other defects of working, into which we need not enter, may be expected to diminish with the increasing development and peaceful prosperity of the country.

The Constitution, while granting absolute political freedom, prohibits the public exercise of any religion other than the Roman Catholic, which is declared the religion of the State. In practice, however, a certain amount of toleration is allowed; and Anglican churches and missionary schools exist in Lima, Callao, Arequipa, and Cuzco. The Roman Catholic churches and convents belong to the State, which makes an annual subsidy in aid of public worship. Facilities for the marriage of non-Catholics has been given by Acts passed in 1897 and 1903.

DEFENCE.—*The Army.* Military service is, by law, compulsory on all male citizens from 19 to 50 years of age; but a payment of £50 exempts from service or passes into the Reserve. The army was re-organised in 1896 by a French Military Mission. The standing army has a peace establishment of 6,500,¹ with a war strength (first and second line only) of 40,000: it includes 5 battalions, 7 squadrons, and 6 batteries. The requisite number of conscripts is drawn by lot annually. Service is for 3 years in the infantry (4 years in the cavalry), in the active army; 7 (or 6) years in the first reserve; 5 years in the second reserve; and 15 years in the National Guard. The arm is the Mauser rifle (1891 pattern), with the Mauser carbine for the cavalry; the artillery have modern Schneider-Canet guns. There are five military districts.

¹ Now (1913) raised to 7,000.

The Police Force has a strength of 5,408, viz., 2,413 civil guards, 1,900 mounted police, and 1,905 foot police.

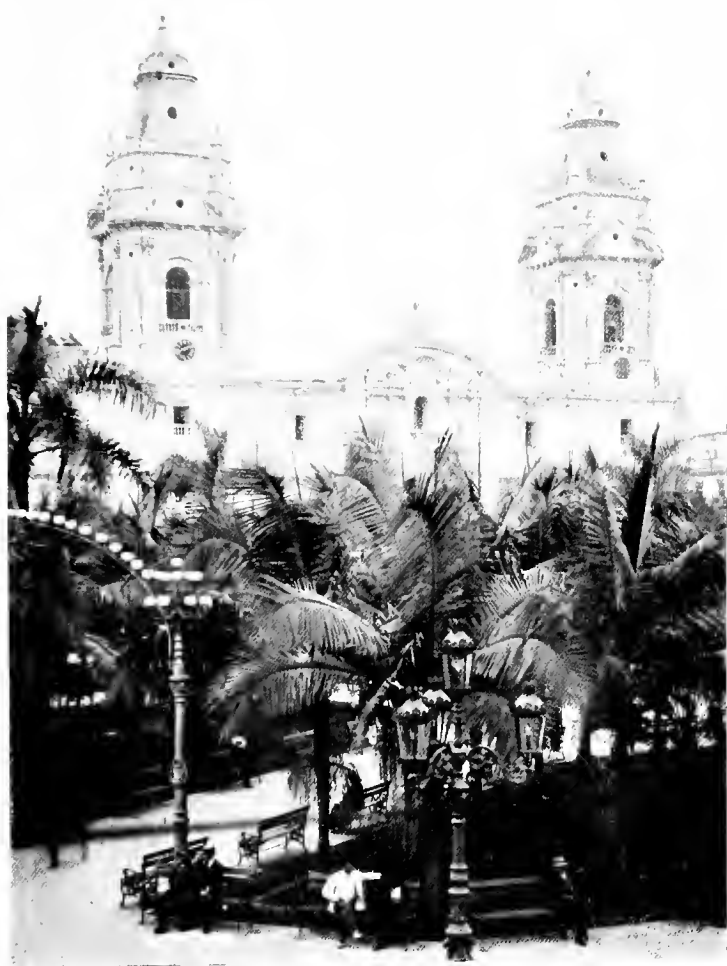
The Navy. The navy was completely destroyed during the war with Chile, and is only being slowly replaced. It consists of fourteen vessels, of which the chief are the following—

(1) The *Alphonso de Ugarte*, an old French armoured cruiser, purchased in 1911 and re-named; 6,400 tons, 13,000 h.-p., 22 knots speed.

(2) The *Almirante Grau* and *Coronel Bolognesi*, twin cruisers, built at Barrow in 1906; 3,200 tons, 24 knots speed.

(3) The *Lima*, cruiser, built at Kiel in 1880, but re-boilered and re-armed; 1,700 tons, 14 knots speed.

(4) Three transports: the *Iquitos*, the *Constitución*, and the *Chalaco*; the first of these is used as a training-ship for cadets.



Cathedral, Lima

CHAPTER VII

NATIONAL FINANCE

THE nineteenth century was, for Peru, a period largely of war and revolution ; while the intervening periods of peace were marred by extravagance, corruption, and economic incompetence. The results upon the finances of the country were disastrous ; and, though a certain amount of order has been introduced into the chaos during recent years, it cannot be said that Peruvian finance is, as yet, quite satisfactory. It would serve no useful purpose to enter into details of the embarrassments and failures of the last century ; but a few salient points must be mentioned as leading up to the financial situation as it exists to-day.

Loans were negotiated in London at various times from 1823, culminating in two issues of 1870 and 1872 ; in the latter year the amalgamated foreign indebtedness of Peru amounted to £32,688,320, requiring an annual payment of about £2,500,000. This the slender revenue of the State was utterly unable to meet, and payment of interest ceased in 1876. By 1879 the debt had risen to £40,214,969. Loans obtained from the banks led to the emission of an excessive amount of paper money, which rapidly depreciated by 90 per cent. The war with Chile soon followed, and resulted in the loss to Peru of the profitable nitrate fields of Tarapacá and of much of the guano deposits on which she had depended for years.

PERUVIAN CORPORATION.—By 1889 the debt amounted

to over £45,000,000, and a radical reconstruction became necessary. This was effected in January, 1890, by means of the Grace-Donoughmore contract, under which Peru was freed from responsibility for the foreign loans ; and, in return, yielded to a committee of foreign bondholders, for a period of sixty-six years, the State railways, with certain rights over guano, mines, and lands for colonisation. The committee thereupon formed, and transferred their rights and obligations to, the Peruvian Corporation, Ltd., which has its headquarters at 43-46 Threadneedle Street, London, E.C. The Government undertook to make for thirty-three years an annual subsidy of £80,000, secured on the Callao customs, but soon fell again into arrears of payment. The Corporation, in consequence, suspended the stipulated railway extensions. After long negotiation, a new agreement was signed in April, 1907, under which the Corporation now works. Even yet, however, there are certain subjects unsettled : in particular, the Mollendo port improvements, the Cerro de Pasco mining concessions, the Chira irrigation canal, and a debt of £200,000 due to Chile.

By the agreement of 1907, the Corporation's former lease of sixty-six years was extended by seventeen years (*i.e.*, it will not expire till 1973). From July, 1907, the Government pays an annual sum of £80,000 in monthly instalments for thirty years, secured on the sugar tax of 1904 ; the Corporation pays as railway tax a sum of £12,000 annually for ten years, £15,000 for the following ten years, and £20,000 for the next ten years, subsequently paying according to the ruling tariff of the year. During the seventeen years' extension, the Government

will receive 50 per cent. of net receipts after a fixed reduction for the service of railway obligations, and will have the right to nominate a director. The Corporation undertook to construct the lines Oroya-Huancayo, Sicuani-Cuzco, and Yonan-Chilete, taking over existing Government contracts and returning the amount received from the Government in connection with these extensions. These extensions are all completed and in operation.

The various activities of the Corporation are as follows—

(1) *Railways*. Eight railways are operated, viz. : (i) Paita-Piura ; (ii) Pacasmayo-Guadalupe and Chilete ; (iii) Trujillo-Salaverry ; (iv) Chimbote-Tablones ; (v) the Central Railway and branches ; (vi) the Southern Railway and branches ; (vii) Ilo-Moquegua ; and (viii) Guaqui-La Paz. The Pisco-Ica has been leased since 1910, the Corporation receiving as rental 30 per cent. of the gross takings ; and the conditions of the Ilo-Moquegua line have not yet been sanctioned by Congress.

(2) *Navigation*. Two lines of steamers are worked : (a) on Lake Titicaca, between Puno and Guaqui ; (b) on the river Desaguadero.

(3) *Guano*. By the agreement of 1890, the guano up to 2,000,000 tons in Peruvian territory was surrendered to the bond-holders, with an additional 1,000,000 tons on completion of the Southern Railway. Long negotiations took place with Chile over the cession of Tarapacá, and ultimately Chile ceded the moneys accumulated in the Bank of England from the sale of guano (about £652,000) and 80 per cent. of the proceeds of sales from 1882 (about £500,000), with the deposits of Pabellon de

Pica, Huanillos, and Punta de Lobos for eight years ; Chile also undertook not to ship guano for four years. In June, 1913, the Government ordered the closing of the Ballestas Islands, a measure against which the Corporation has protested.

(4) *Colonisation.* The land colony in the Perené Valley shows progressive improvement, yielding in 1913 a profit of £540. The Corporation also holds shares to the amount of £810 in the New Chosica Land Co.

(5) *Irrigation.* The Chira Irrigation Canal, which cost £120,695, is maintained and administered by the Corporation.

By contract with the Government, the Corporation has spent £120,000 on the improvement of the port of Mollendo.

The various railways and navigations are transferred to separate subsidiary companies for the purpose mainly of better organisation. The Corporation also hold 840 ordinary £1 shares in the Peruvian Cotton Manufacturing Co., upwards of £2,500 shares in the Mollendo Agencies Co., and a considerable amount of real estate acquired for railway purposes. The piers and quays at the coast termini of their railway lines are also worked by the Corporation.

The above details indicate the vastness and importance of the Corporation's undertakings. The capital consists of £7,500,000 Cum. Pref. Stock, £9,000,000 Ord. Stock, together with debentures. The latter are being gradually amortised, the amount in June, 1913, standing at £5,176,000. The net receipts have shown a great improvement : from £91,771 in 1890-1 to £200,758 in 1900-1 and

£468,693 in 1910-11. Those for the last year (1912-3) amounted to £438,501.

The Grace-Donoughmore contract was a revival of a previous scheme for financial adjustment, proposed in 1878. In that year the price of Peruvian bonds was 40, and it was proposed to redeem them at this price by the formation of limited companies, to which the existing State railways should be handed over: these railways (for which the loans had originally been contracted) were valued at £15,680,000. The Peruvian Corporation received not only these railways, but also those of Pisco, Salaverry, and Paita, together with £560,948 in cash, and Chilean bonds for £630,000, *i.e.*, upwards of £18,000,000 in all; which represents a value of 55½ instead of 40 for each bond. This, with the loss of guano, and a standing subsidy of £80,000 a year, is the price paid by Peru for her disasters in the Pacific War. On the other hand, she has benefited by the extension and efficient management of the railway and other services of the Corporation, work for which her previous record proves that she was not as yet fully competent.

RECENT LOANS.—Minor loans were raised in 1906, 1909, and 1910. Of these, only that for 1909 (of £1,200,000, at 94, bearing 5½ per cent. interest, secured on the salt tax) remains unpaid. A certain amount has been amortised, and the total foreign debt on 31st May, 1913, amounted to £1,137,330.

The present Government, with the object primarily of clearing off all overdue debts and claims, and, secondarily, of executing some necessary and productive works,

proposes to issue a loan of £6,600,000 at 6 per cent. By a stringent investigation of the national expenditure and the enforcement of a watchful economy, it hopes to provide for the interest and gradual amortisation of both the foreign and internal debts.¹

INTERNAL DEBT

The internal debt of Peru consists of (a) bonds, consolidated by the law of 1889, and now standing at a nominal value of £2,660,645, paying 1 per cent. ; (b) amortisable bonds, non-interest bearing, at a nominal value of £1,134,210 ; and (c) certain quit-rents, chaplaincies, with interest and recognised credits, of a nominal value of £511,767. The present quotation of the first is 13·8 per cent., and for the second 8·8 per cent. The Government propose, in the interests of Peruvian financial credit, to convert the first at the price of 14½ per cent., and the other two at 10 per cent., into bonds paying interest at 7 per cent.¹

REVENUE AND EXPENDITURE

The most authoritative and illuminating statement on the financial position of Peru is to be found in the message to Congress on 5th September, 1913, of President Guillermo E. Billinghurst. While indicating in moderate language certain flagrant abuses in the past, it faces the facts of the situation ; enforces the necessity of economy and pure government ; and presents in the Budget for 1914 a "frank and honest computation," in which large economies are carried into effect.

¹ This refers to the administration of President Billinghurst, and was written before its overthrow by the recent revolution of 4th February, 1914.

Expenditure rose from £734,693 in 1894 to £2,506,386 in 1906 (*i.e.*, by over 26 per cent. annually, or 341 per cent. in thirteen years). For this increase the President could find "no satisfactory explanation." Again, from 1907 to 1912, expenditure rose from £2,467,834 to £3,493,626, the increase in the last year being no less than £660,558. A marked and very unsatisfactory feature of these years was the regular excess of expenditure over revenue, so that the present Government have, as one legacy from the past, a debt of £676,068 on the years 1908-12 inclusive. For purposes of comparison, it will be well to give the expenditure of the year Jan.-Dec., 1912, before going on to the new estimates for 1914.

EXPENDITURE IN 1912

The Treasury	£	1,092,295
Ministry of War and Marine	864,664	
Government and Police	633,237	
Justice and Education	499,219	
"Fomento" (Development)	208,826	
Foreign Affairs	111,133	
The Legislature	84,252	
	£3,493,626	

The increased amount for the *Treasury* showed on analysis, some temporary features, such as the establishment of the tobacco monopoly, and the payment of previous debts, and certain others of a reproductive character.

The disproportion between estimate and payment in the item "interest, discounts, and commissions" was

particularised by the President, who gave the following table—

		Estimated.		Paid.
1907	..	5,000	..	9,426
1908	..	5,000	..	12,737
1909	..	5,000	..	19,977
1910	..	5,000	..	33,218
1911	..	5,000	..	62,687
1912	..	15,000	..	82,249
		<u>£40,000</u>		<u>£220,294</u>

The increased amounts required by *War and Marine* were necessitated by the increase of the standing army to 7,000 men ; increases of pay ; renewal of equipment ; and payment of services required by former laws, but not allowed for in the Budget.

A leakage was revealed under the item of " Preventive Police." The estimate for this from 1904–12 was £4,000 annually, or a total of £36,000 ; the actual payments reached £140,290. The President noted that " not only had unjustifiable disbursements been made, but the money had been applied to purposes for which it was not intended."

The estimates for 1912 and 1913 were identical, and were prepared by the previous administration. The estimates for 1914 are as follows—

				£
Revenue	..	..	..	3,547,836
Expenditure	..	..	..	3,109,836
				<u>£438,000</u>
Balance	..			

The following tables compare the Budgets for 1912 and 1914 in detail (fractions omitted)—

I. ESTIMATED REVENUE

SOURCES.	1912.*	1914.	De-crease.	In-crease.
	£	£	£	£
Maritime Customs Houses	1,201,562	1,305,112	—	103,549
Fluvial	233,000	200,000	33,000	—
Taxes	670,450	730,428	—	59,978
Monopolies	688,495	740,708	—	52,213
Fiscal Wharves	22,938	3,312	19,626	—
Various Revenues	175,410	219,776	—	44,366
Telegraphs	30,000	35,606	—	5,606
Post Offices	96,800	129,019	—	32,219
Wireless Telegraphy	2,114	2,115	—	1
Peruvian Corporation	12,000	12,000	—	—
Deposits and Consignments	6,000	6,780	—	780
Cereal Deposits, Bellavista	10,700	14,569	—	3,869
Explosives	2,562	2,562	—	—
Education Funds	161,364	145,849	15,515	—
Total.. .. .	3,313,396	3,547,836	68,141	302,581

II. ESTIMATED EXPENDITURE

BRANCHES.	1912.*	1914.	De-crease.	In-crease.
	£	£	£	£
Legislature	107,942	107,942	—	—
Government	559,715	510,613	49,102	—
Foreign Affairs	98,620	88,814	9,806	—
Justice	520,325	481,345	38,979	—
Treasury	1,070,829	888,224	182,604	—
War	738,401	832,385	—	93,984
"Fomento"	217,500	200,510	17,049	—
	3,313,396	3,109,836	297,543	93,984

* These tables give *estimated* expenditure for financial year of 1912; the table given above shows the *actual* disbursements from Jan.-Dec., 1912.

It may be noted that salt was declared a Government monopoly in 1896. The proceeds were intended to be devoted to the ransom of Tacna and Arica, but have since been used to guarantee foreign loans. The collection is farmed out to the *Compañía Salinera Nacional*.

Tobacco similarly was declared a Government monopoly in 1909.

The collection of other taxes is farmed out to the National Tax Collecting Co. (*Compañía Nacional de Recaudación*), which takes 1 per cent. on the revenue of the branches it administers; 6 per cent. for collection of Lima and Callao licence fees; and 10 per cent. for administration of moles at Tumbes, Supe, and Chala.

CHAPTER VIII

COMMERCIAL AND GENERAL SOCIAL CONDITIONS

INDIVIDUAL LIBERTY — COMMERCIAL LAWS — BANKS —
PUBLIC HEALTH—LANGUAGES—EDUCATION—INSTITUTIONS
AND CHARITIES—NEWSPAPERS AND PERIODICALS—LABOUR
CONDITIONS—IMMIGRATION

THE following guarantees of individual liberty are quoted from Chapter IV of the *Constitution of Peru*—

Art. 14. No one is obliged to do what is not ordered by the Law, nor is he prevented from doing what the law does not prohibit.

Art. 15. No law has nor can have retroactive effects.

Art. 16. The law protects honour and life against all unjust aggression ; the penalty of death can only be applied for homicide qualified as premeditated murder.

Art. 17. There are not and cannot be slaves in the Republic.

Art. 18. No one can be arrested except upon the written warrant of a duly qualified judge ; or of the authorities charged with the duty of preserving public order ; except if taken in *flagrante delicto* ; and in all cases a person arrested must be brought before a magistrate within twenty-four hours after arrest. Those charged to carry out the warrant must give a copy of it to the accused if asked to do so.

Art. 19. The jails are places for detention and not for punishment. All severity is prohibited if not necessary for the custody of the prisoners.

Art. 20. No one can be exiled from the Republic, nor separated from his place of residence except by a judicial sentence.

Art. 21. Everybody is at liberty to make use of the press for the publication of his writings, without censorship, but under the responsibility laid down by the law.

Art. 22. The secrecy of correspondence is inviolate, and no legal use can be made of letters which have been stolen.

Art. 23. Everyone is at liberty to follow any trade, industry

or profession which is not against the public morals, health or security.

Art. 24. The nation guarantees the existence and diffusion of free primary education and the support of public establishments for the sciences, arts, religion and benevolence.

Art. 25. All who can give the guarantee of capacity and morality required by the law are at liberty to teach and to direct educational establishments, under the inspection of the authorities.

Art. 26. Property is inviolable, whether material, intellectual, literary, or artistic ; no one can be deprived of his, unless for causes of public utility, which have previously been proved and legally declared, and then only by indemnification under a just valuation.

Art. 27. Useful discoveries and inventions are the exclusive property of their authors, unless these voluntarily cede them or sell the secret, or when it may be necessary for motives of public policy to expropriate them compulsorily. The introducers of new inventions will enjoy the same privileges as the inventors for the limited time which is conceded in accordance with the law.

Art. 28. *Any foreigner may acquire, in accordance with the law, territorial property in the Republic*, under precisely the same conditions and obligations with regard to such property as the Peruvian citizen.

Art. 29. All citizens have the right to associate peacefully, whether in public or private, so long as they do not disturb public order.

Art. 30. The right of petition may be exercised individually or collectively.

Art. 31. The domicile is inviolable ; no one can enter it without previously showing the written warrant of a judge or of the authorities charged with maintaining public order. The executors of the said warrant are obliged to give a copy of it when asked to do so.

Art. 32. The laws protect and are obligatory *equally to all*. New laws may be established when the circumstances show them to be required, but not for the differentiation between persons.

By the Law of 14th October, 1892, foreigners are eligible as members of the Municipal, District, and Provincial Councils.

By laws passed in 1897 and 1903, facilities have been given for the civil marriage of non-Catholics and of foreign residents.

COMMERCIAL LAWS.—The Commercial Code of Peru is, substantially, the Spanish Code of Commerce of 1885 ; it has been slightly modified by later legislation. A few points may be of interest to English readers.

A Mercantile Register is kept in the capitals of departments : one book for individual traders, and one for companies ; in Callao, Iquitos, and Puno, a third book is kept for vessels. Inscription on the register is optional for individuals, but compulsory for all companies—domestic and foreign.

Foreign companies must produce a certificate from the Peruvian Consul in their own country that they are in that country legally constituted.

Commercial exchanges may be established where necessary, and require Government authorisation ; also colleges of exchange brokers, commercial brokers, and interpreting shipbrokers, each of which must have a governing board. The registers of all collegiate brokers are legal evidence.

The chief of these institutions is the Commercial Exchange of Lima, regulated by a decree of 1898. The members, elected by ballot, pay 3 *soles* per quarter ; large firms pay 10 *soles* quarterly and receive four cards of admission. Non-residents in Lima may be introduced by members.

Banks are ordered to keep in cash a sum amounting to not less than 25 per cent. of their obligations, and to publish in a local daily newspaper a monthly statement of their position. Cheques must be presented for payment *within eight days*, including the day on which they are drawn.

The ordinary commercial instruments, *e.g.*, bills of exchange, promissory notes, cheques, letters of credit, are in vogue, and duly provided for and regulated in the Code.

Insurance policies of all kinds may be negotiated :—for fire ; life ; transport by land, sea, and river ; and other risks.

General deposit warehouses are empowered to issue receipts for merchandise stored therein ; these receipts are negotiable by endorsement or other modes of assignment.

Regulations for Travellers and their Samples. The importation of travellers' samples to Peru is regulated as follows—

1. The interested persons (Travellers) must present in each case, in duplicate, a detailed inventory with the following data—

(a) Mark, number, and gross weight of each bale.

(b) Number of each kind of goods in the bale, and the class and number of the tariff to which it belongs ; description of the article, gross, *legal* and net weight, and dimensions of each article, if possible.

(c) Only one sample of each kind of goods can be imported ; the importation of several samples is permitted only when there is a difference in quality, form, size, weight, or colour.

(d) The goods that, according to the tariff are free of duty, can be imported without fulfilling the preceding requisites ; and

(e) The goods, the importation of which is prohibited, can, according to paragraph (c) be left in bond in the Customs-house, the expense of packing and storage being charged to the interested persons, as per special tariffs.

2. For the objects contemplated by paragraphs (a) and (d) of the preceding article, certificates of consumption in triplicate must be presented.

3. The duties must be *paid in cash or in bank drafts*, and will be returned as and when the goods are re-exported, making allowance for the expenses referred to in paragraph (e) of Article 1.

4. The Customs House fixes, in each case, a reasonable term not exceeding three months for the re-exportation, and there is no right to demand the recoupment of the monies paid for duties after that term has elapsed. The draft will be collected at the end of the term.

5. In order to re-export a collection of samples or a part thereof, the interested persons must present the requisition with due anticipation at the Customs House, and the Customs House is not responsible for any delay in the shipping if the samples are not presented in due time.

6. If on examination it can be shown that a sample is missing or has been altered as to its weight or measure, or replaced, double duties will be charged, and the article intended for substitution will be confiscated.

7. Samples imported in conformity with the above-mentioned regulations can go all over the Republic, subject to the provisions of the Commerce and Customs House Regulations.

The only tax to be charged to the travellers is £1 5s. 0d. per half-year, which must be paid by the agent to the Departmental Juntas (Boards) of the Departments he visits.

The luggage of theatrical troupes, circuses, and other similar concerns, will be dispatched by the Customs Houses on presentation of a memorial signed by an agent stating that he goes security for the duties to be

collected on these goods, should the importers not comply with the re-exportation of the goods. The Customs House, after recording the number of bales, their weight and contents, will value them and charge 1 per cent. on the valuation or the equivalent of the duties corresponding to the Consular invoice, which amount is not returned to the interested parties.

Land Mortgage Companies are empowered to lend by instalments on immovables, and to issue bonds and mortgage "cedulas." They must reserve 50 per cent. of their capital for the first of these objects.

Contracts of affreightment, with the usual particulars, must be drawn up *in duplicate* in the charter-party signed by the contractors.

In addition to the original bill of lading, *four copies*, signed both by the master of the vessel and the consignor, are required; one to be kept by the consignor, one by the consignee, one by the master, and one by the managing owner.

The contract of marine insurance must be drawn and signed *in duplicate*, one copy being kept by each party.

Full provision is made for average, both particular and general.

The various terms fixed by the Code for the limitation of actions are absolute.

Exporters should be careful to observe the regulations for the filling in of the master's manifest, the bill of health, and the consular invoices, to the number required by law. Regular charges and special consular stamps are provided for the due countersigning of all such documents.

BANKS.—The principal banking establishments of Peru have their headquarters in Lima, and are as follows—

The *Italian Bank*, founded in 1889 ; capital, £200,000.

The *Bank of Peru and London*, founded in 1897 by merging the branch of the Bank of London, Mexico, and South America with the Bank of Callao ; capital, £500,000 ; has branches in Callao, Arequipa, Piura, Trujillo, Pacasmayo, Chiclayo, Ica, Cuzco, Cerro de Pasco, and Iquitos.

The *German Transatlantic Bank* ; capital, £200,000 ; branches at Callao and Arequipa.

The *International Bank of Peru* ; capital, £100,000.

The *Popular Bank* ; capital, £100,000.

The *Deposits and Consignments Bank* ; capital, £100,000 ; foundation caused by a law requiring judicial and fiscal deposits to be made in one institution ; capital subscribed by the other Lima banks.

The *Savings Bank of Lima* (Caja de Ahorros de la Beneficencia) ; capital, £20,000 ; deposits over £200,000.

Iquitos has enjoyed banking facilities only since the close of 1911, when two agencies were opened. One, mentioned above, is a branch of the *Lima Bank of London and Peru* ; the other, which combines a banking with a merchant business, is the *Cortes Commercial and Banking Co.* The British Consul reports—

“ The advent of these institutions has been beneficial to commerce in general by providing credit on properly established lines, and by the introduction of the current account system, whereby payment may be made by cheque. This is both safer and less cumbersome than the old form of payments in gold and silver.”

It is a general feature of the Peruvian banks that the gold reserve and cash balances held are very considerable.

The emission of bank-notes is prohibited by law. The banks are authorised to issue mortgage bonds on landed property.

PUBLIC HEALTH.—Public health is watched over, as has already been mentioned, by the local councils, and also by medical officers of health, holding salaried appointments in each province.

There is also a Supreme Sanitary Council in the capital of the republic, and sanitary councils in each of the departments and provinces. These have the special duty of taking precautionary measures, including quarantine, against vessels coming from infected ports.

In the majority of the capitals there are hospitals, supported by benevolent societies, which give free medical aid to the poor.

Foreigners are admitted into these hospitals and aided, when necessary, by the benevolent societies (for which, see below).

In spite of the above provision for the safeguarding of public health, progress is very slow. The lack of drainage in the older towns (*e.g.*, Cuzco) is noted by every traveller. Arequipa has recently arranged for a new and improved water supply. The Consular Reports for 1912 contain the following notes on Lima, Callao, and Iquitos—

“The sanitary condition of Lima and Callao has been particularly bad during 1912. Never were both towns in a more unsatisfactory condition. Bubonic plague continues to be virulent, especially in the north of Peru. There has been no yellow fever. Enteric fevers have been prevalent as well as small-pox.”

“It is a matter for congratulation that, in spite of the

insanitary conditions which obtain in the town of Iquitos, its immunity from infectious diseases since the early part of the year has been remarkable.

"The Government recently made a contract with an American sanitary expert, who is to make a prophylactic campaign throughout the town, and it is therefore to be hoped that, with the preventive measures thus taken and with the support of the local authorities, there will not be a recurrence of the yellow fever scourge in the form of last year's epidemic.

"The sanitary expert arrived on 11th November, 1912, and he will work in conjunction with the engineers who are to undertake the drainage and general improvements of the town in accordance with the Government's proposed scheme, which was authorised by Congress on 11th November, 1911.

"The Bill provides for the issue of a loan of £200,000 (Peruvian), to be issued at 92 per cent., and at 8 per cent. interest and sinking fund. The proceeds of the loan are to be devoted to the sanitation of the town of Iquitos.

"In this connection, two American engineers have been contracted by the Peruvian Government, and these are at present engaged on the studies in connection with the scheme ; but up to the time of writing there are no indications of the actual work being commenced."

LANGUAGES.—The language of the Peruvian of Spanish descent, and of the *Mestizos*, or mixed Spanish and native blood, is, of course, Spanish. The *Cholo* population of the sierra region, while using a certain amount of Spanish in their intercourse with the two classes just mentioned, speak among themselves their two dialects of Quichua and Aymará. The diverse wild Indian tribes of the *montaña* speak each its own dialect. English and French are very generally known among the educated classes and the former is taught in the higher schools. It is a commonplace, but cannot be too often repeated, that English traders, in competition with other mercantile nations, would do well in their advertisements, samples,

and exported goods to adopt Spanish nomenclature and the metric system.

EDUCATION.—Peru possesses four universities :—those of Lima, Cuzco, Arequipa, and Trujillo. That of Lima, the *Universidad de San Marcos*, originated in a grant made in 1551 by Charles V to the Dominicans. It has faculties of jurisprudence, literature, medicine, political science, and theology. That of Cuzco was founded in 1598, and that of Arequipa in 1616.

Lima possesses a School of Mines and Civil Engineering, founded in 1874 ; a National School of Agriculture ; a School of Arts and Trades. There is a Naval School at Callao ; and a Military Academy, under the direction of French officers, at Chorrillos.

There are nine episcopal seminaries, one for each diocese. The principal towns contain private secondary schools, many under the direction of English, German, and Italian staffs ; and also twenty-four national colleges for boys and three for girls, with foreign teachers.

Elementary education is, by law, compulsory for both sexes, and is free in the public schools provided by the municipalities. There are upwards of 2,000 primary schools and 2,750 teachers. It is stated that the number of pupils in these, in 1911, was 146,400, while the number that ought to have attended was 407,987.

There is a reformatory for juvenile offenders.

It may be said that the professional and academical needs of the upper and middle classes are fairly well met ; but that the percentage of illiteracy is still extremely high, and that very much remains to be done for the poorer classes of the community.



School of Arts and Crafts, Lima

The amount spent on education has, like most of the items in the Budget, increased vastly in recent years, rising from £29,000 in 1894 to £306,500 in 1912. The totals expended in the last six years were—

					£
1907	..	....	..	..	289,087
1908	..	..	..	..	314,738
1909	..	..	..	..	288,235
1910	..	..	..	..	263,373
1911	..	..	..	..	269,482
1912	..	..	..	..	306,598

The present Government¹ announce its determination to remove all obstacles to the effective diffusion of primary instruction throughout the republic; to create new schools; to found night schools; and to give more attention to the teaching of practical arts.

In accordance with this announcement, it established at Magdalena, a Domestic Training School for 300 poor girls, of whom 200 are to be brought from the provinces; and it is intended to add to the curriculum of the girls' schools in the provincial capitals, a complete course of training in the domestic arts, and to that of the boys' elementary schools courses of practical work in carpentry, metal-working, etc.

INSTITUTIONS AND CHARITIES.—The universities and schools have been mentioned under *Education*, and the Church organisation under *Religion*. The other learned institutions, with the exception of the meteorological stations and observatory at Arequipa, are practically all centred in Lima. The following are prominent—

The *National Library*, founded in 1822, ruined in 1881

¹ i.e., under Pres. Billinghurst.

by its occupation as a cavalry barracks by the Chileans, but later re-formed under Ricardo Palma.

The *Geographical Society*, founded in 1888, and subsidised by Government. It issues valuable bulletins quarterly.

The *Athenaeum*, a literary institution, founded in 1877.

The *Historical Institute*, which investigates the pre-historic archaeology of Peru, as well as the strictly historic periods ; it possesses a museum.

The *Society of Engineers*, with large library.

National Societies of *Industry*, of *Mining*, of *Agriculture*, and of *Medicine*.

Among commercial institutions, the *Lima Chamber of Commerce* and the *Stock Exchange* should be mentioned ; and among Government institutions, not elsewhere named, the flourishing *Mint*.

CHARITIES.—Charity, as an item of the annual Budget, was formerly administered by the department of "Fomento," but is now under the Ministry of Justice ; about £8,000 is expended annually.

Apart from this, there are some forty-five or fifty benevolent institutions throughout the country, with revenues aggregating about £230,000. They are found in the principal cities, and are administered by special boards. The largest of these is the *Lima Benevolent Society*, which maintains three hospitals. Other hospitals are maintained from private sources ; and some, with prisons, asylums, and the great Penitentiary of Lima, by the Government.

NEWSPAPERS AND PERIODICALS.—The leading daily papers of Peru are issued at Lima ; but most of the

other leading cities (e.g., Arequipa, Trujillo, Cuzco, and Iquitos) possess daily and weekly papers. The total number is about 200. In Lima, the foremost newspaper is *El Comercio*, a progressive and enlightened organ. *La Prensa*, issuing morning and evening editions, ranks next. Both have illustrated Sunday editions. Of the other Lima dailies, *La Opinion Nacional* is perhaps the most prominent. There are two important illustrated weekly papers; and *El Agricultor Peruano*, the organ of the National Society of Agriculture, is also issued weekly. There are a number of monthly publications, representing the various scientific, professional, and commercial institutions, of which the following deserve mention:—The *Boletin de Fomento*, the *Boletin de la Soc. de Ingenieros*, the *Boletin del Cuerpode Ing. de Caminos*, and *Minas Ind. y Construcc.*

LABOUR.—The following notes on labour conditions in 1912 are quoted from the British Consular Report—

“Chiefly owing to political causes the latter part of 1912 has been agitated by labour troubles, the demand being for an eight-hour day and an increase in wages.

“The demand was made and immediately followed by a strike in Callao on the part of the dock and wharf labourers and others engaged in the loading and unloading of ships. The result was a victory for the men. As it was, the men, prior to their recent demand, only worked eight hours effective labour, although supposed to be working ten hours. The hands in the flour mills, bakeries, iron foundries and machine shops followed suit, and although the strike did not extend to Lima, the Callao strikers were assisted by their fellow-workers in the capital by funds and donations.

“The time taken for the realisation of these demands seems inopportune. Peru was beginning to recover from the want of confidence resulting from a long period of political unrest, both as to internal and external affairs, an improvement in the

market price of staple Peruvian products had begun to stimulate trade, and merchants were recovering from the overstocking of the market as a result of the over-buying of 1907, when there was a set-back caused by the demands of labour for an eight-hour day as well as a 30 per cent. increase on existing wages. Few of the business houses can meet the rise in cost of production which such an increase in their general expenses portends, and as it affects all trades it means a general increase in the cost of materials as well as of labour, which may end in killing some of the new industries carefully fostered by artificial methods, besides throwing out all provisions as to contracts and other agreements entered upon previous to the demands of the men. On the other hand, masters admitted that, owing to the *increased cost of living* and *rise in rents*, a readjustment of wages was bound to come, and it is to be regretted that in the readjustment wiser councils have not prevailed, for in those cases in which the industries will not be able to meet the new charges, many factories and workshops will have to close down, thereby throwing a number of men out of work. The singular feature of labour in Peruvian coast towns is, that although the country is canvassing in Europe for immigrants, there is not enough work available to keep the existing working population adequately employed.

“AGRICULTURAL LABOUR.—The sugar plantations in the coastal valleys employ some 17,000 hands at an average wage of 3s. per diem. Work, however, on these plantations is not suitable to Europeans and is carried on by natives or descendants of African negro slaves and of Chinese coolies, and in recent years by imported Japanese labour.”

IMMIGRATION.—Immigration is very slight, and it cannot be said that Peru offers a favourable field for the European immigrant of small means. His physique is unsuited for the labour conditions of the coast valleys; the labourers imported in this part of Peru at different times have been negroes, Chinese, and Japanese. The rarefied atmosphere of the high sierra, and the tropical heat of the low-lying *montaña*, are equally unsuitable.

There remains the higher parts of the *montaña* as it rises towards the Andes. Here a field for immigration may be found ; but the means of transit and transport must first be developed, and much capital must be sunk and pioneer work accomplished.

CHAPTER IX

INLAND COMMUNICATION AND TRANSPORT

INLAND communication in Peru may be classified under the three heads of roads, railways, and waterways.

ROADS.—Of the roads it may almost be said, as of the snakes in Ireland, that there are none ; and of the coast district an Irish writer might be expected to state that the “inland” communication is conducted by sea. Thus, between Cajamarca and Huancayo, or Cuzco, the inevitable route would be by railway to the coast at Pacasmayo, then by sea (to Callao or Mollendo respectively), and finally by railway again.

Great trunk roads, one in the coast zone and one on the plateau from Cuzco to Quito in Ecuador, were made and maintained by the Incas ; but the glowing accounts of those roads by early Spanish writers appear to be full of exaggeration. The Incas had no horses, mules, or wheeled vehicles ; their roads were, therefore, designed for foot passengers, and might be perhaps better described as “trails.” Their method of crossing ravines by suspension bridges constructed of osiers and prairie grass has, however, survived to this day. But the Inca roads, such as they were, were neglected by their conquerors ; transport was entirely conducted by means of mules and llamas ; and no new roads, strictly so-called, were made. It has been said that in South America, railways came before roads, and it is especially true in the case of Peru. This arose partly from the phenomenal difficulties presented by the physical nature of the country, but partly,



too, from poverty, administrative corruption, and lack of enterprise. The cross-country roads are, in general, nothing but "steep, ill-made pack-mule trails."

To-day this state of things is being remedied. The Government is alive to the importance of developing the country by means of roads as well as railways, and is encouraging road-making both directly and indirectly. Thus they have built and maintained the "Central route" to the Montaña from Oroya, through Tarma, to Puerto Bermudez on the Pichis river; and concessions of land are generally only granted on condition of building roads or railways in the district. Thus the road from Tiripata *via* Cruceros to the Montaña has been built by an American mining company. The old "Northern route" to Iquitos should also be mentioned. It is from Pacasmayo *via* Cajamarca, Chachapoyas, and Yurimaguas on the Huallaga, and is often preferred to the Central route between May and November.

The chief carriage road in Peru is from Sicuani to Cuzco, a distance of 90 miles. There is also a short one between Trujillo and the port of Huanchaco. With these exceptions, roads are practically non-existent. But there are numerous parts where the lie of the country invites the building of roads to link up towns of considerable size; and with the high perfection to which motor construction has now been brought, it is important that this should now be done.

The following itinerary¹ explains in detail the mode of travelling from Lima to Iquitos by the usual "Central" or Pichis route—

¹ Taken from an official Immigrants' Guide to Peru, 1902.

ITINERARY OF THE JOURNEY FROM LIMA TO IQUITOS BY THE CENTRAL RAILWAY

Means of Locomotion.	Places of Transit.	Days.	Kilom.	Total distance from Lima in Kilos.
By railway..	<i>From Lima to Oroya</i>			
" horse ..	Oroya to Tarma	1	206	206
" animals ..	Tarma to Huacapistana, passing through Acobamba, Palca and Carpapata	1	30	236
" ..	Huacapistana to La Merced, passing through La Libertad and San Ramón	1	44	280
" ..	La Merced to Vista Alegre, passing through Perené and San Luis de Shuaro.. ..	1	34	314
" ..	Vista Alegre to Tambo Eneñas	1	34	348
" ..	Eneñas to Tambo, kilometre 93	1	42	390
" ..	Tambo kilometre 93 to Azupizú, passing through San Nicolás.. ..	1	42	432
" ..	Azupizú to Puerto Yessup, passing through Puerto Ibarra	1	50	482
" ..	<i>Puerto Yessup to Puerto Bermúdez</i>	1	42	524
" ..	<i>Puerto Bermúdez to Iquitos, passing through Puerto Victoria and Masisea</i>	1	20	544
By animals or in canoes ..				
By steamer ..		7	1500	2044

There are 2,044 kilometres, which can be traversed in 17 days, in going from Lima to Iquitos. The return, owing to the river current, requires five days more.

Tarma. The journey from Callao to La Oroya (220 kiloms.) can be accomplished in a day. Proceeding on his way for three hours more, by road, the traveller reaches Tarma, one of the principal cities of the Department of Junín, with a population of 10,000 inhabitants, colleges, schools for elementary education, and resources of every kind.

At 78 kilometres from Tarma, and united by a good road which can be traversed in ten or twelve hours, the fertile valley of Chanchamayo is gained, where, properly speaking, the Montaña zone begins, and vegetation assumes an aspect of surprising exuberance.

In this valley are to be found valuable plantations of sugar-cane, cacao, and coffee, with their dwelling-houses and machinery—plantations that to-day constitute the fortune and wealth of a number of families which, not many years ago, settled in the Montaña region, without other capital than their integrity and devotion to industry.

La Merced. The town of La Merced owes its existence to the development of Chanchamayo. It is situated in the valley of that name, and has an almost cosmopolitan population of about 600 inhabitants. It is of necessity the centre for commercial transactions in the products of the neighbouring plantations.

Its local affairs are under the control of a municipal council, which provides primary schools, and for the public security there are a Commissary and a police force.

San Luis de Shuaro. At 30 kilometres from La Merced is the town of San Luis de Shuaro, on the banks of the river of that name and the Rio Paucartambo. Its sole

importance is due to the fact of its marking the commencement of the Pichis highway, and to its being surrounded by coffee plantations. Nevertheless, it offers some accommodation to the traveller.

* * * * *

The Pichis highway has a length of 221 kilometres, with a 5 per cent. gradient, as far as Puerto Bermúdez, which is situated at the confluence of the rivers Pichis and Chivis.

Puerto Bermúdez has a Commissary and a garrison of gendarmes; it is separated from Iquitos by the courses of the Rivers Pichis, Pachitea, Lower Ucayali, and a part of the Amazon, that is to say, by a distance of 1,000 miles, which is traversed by the launches of the State in ten days down stream, and in twelve days up stream. Thus the products from the areas contiguous to the Central highway can be exported, following the river route towards the Atlantic, and overland towards the Pacific.

The Government maintains, at the unpopulated points of the transit, homes or shelters (*tambos*) for the accommodation of passengers. These are separated from each other at a distance corresponding to that which a traveller can cover in a day, as on next page.

RAILWAYS.—Though there is a fairly long list of railway lines in Peru, the total length is only about 1,728 miles. The Andes run parallel with the coast at a distance of about 80 miles; and most of the lines are, therefore, short railways constructed to develop the products of particular valleys, and carry them down to the port at the river-mouth, where there is usually a railway pier.

PLACES OF REFRESHMENT ON THE PICHIS HIGHWAY

TARIFF

	Llapaz, Km. 20-500.	La Salud, Km. 33.	Esperanza, Km. 50-800.	Bellavista, Km. 77.	Pelagatos, Km. 93.	San Carlos, Km. 110.	San Nicolas, Km. 128.	Azupizú, Km. 148.	Puchallini, Km. 157.	Puerto Yessup, Km. 180.
	Soles.	Soles.	Soles. ¹	Soles.	Soles.	Soles.	Soles.	Soles.	Soles.	Soles.
Breakfast ..	0 30	0 30	0 30	0 30	0 30	0 30	0 30	0 30	0 30	0 30
Lunch ..	0 60	0 70	0 80	1 00	1 00	1 00	1 00	1 10	1 20	1 20
Dinner ..	0 60	0 70	0 80	1 00	1 00	1 00	1 00	1 10	1 20	1 20
Lodging ..	0 50	0 50	0 50	0 50	0 50	0 50	0 50	0 50	0 50	0 50
Fodder for one beast..	0 50	0 50	0 50	0 50	0 50	0 50	0 50	0 50	0 50	0 50

EXTRAS.—A charge is made proportional to distance, at San Luis.

NOTE.—Lunch and dinner consist of two or three dishes.

One result of this independent construction is the variety of gauges employed. The two big railways and a few others have the "normal" (English) gauge of 4 ft. 8½ in. (= 1.45 metres); others have a "metre gauge"; or 3 ft. (= 0.91 metre); or still narrower ones. The two lines which scale the Andes—the Central and the Southern—are described in some detail below. In the following table the railways are named in order from north to south; those marked with an * are State railways, at present controlled by the Peruvian Corporation. (For this body, see Chapter on *Finance*.)

Name of Railway.	Built.	Gauge.	Length.
1. Tumbes—Puerto Pizarro ..	1907	0.75m.	11.00km.
*2. Paita—Piura	1884	1.45	97.00
3. Piura—Catacaos	1888	0.75	10.65
4. Bayovar—Reventazon ..	1904	1.00	45.00
5. Eten—Ferreñafe	1871	1.45	43.10
6. Pimentel—Chiclayo	1873	0.91	24.14
7. Chiclayo—Patapo	1871	1.45	24.00
8. Eten—Cayalti	1904	0.60	37.00
*9. Pacasmayo—Chilete ..	1876 and later	1.45	195.00
" —Guadalupe }			
*10. Salaverry—Ascope	1875	0.91	76.00
11. Huanchaco—Tres Palos ..	1898	0.91	68.00
(Roma)			
12. Chicama—Pampas	1898	0.91	45.00
*13. Trujillo—Menocucho ..	1896, 1905	0.91	26.00
*14. Chimbote—Tablones ..	1872	1.00	57.00
15. Supe—Barranca (Pativilca)	1902	0.60	12.20
16. Pativilca—Paramonga ..	1903	0.60	8.0
17. Supe—San Nicolás	1899	1.00	6.00
18. North Western Railway, Sayán — Huacho and Huacho—Ancón	1911	0.91	205.00
19. Playa Chica—Salinas de Huacho			
20. Chancay—Palpa	1876	1.00	10.00
.. ..	1877	1.00	25.00
*21. Lima—Ancon	1869	1.45	38.00
*22. Central Railway	1870, 1893	1.45	372.00
23. Casapalca—El Carmen ..	1901	0.60	5.00

	Name of Railway.	Built.	Gauge.	Length.
24.	La Oroya—Cerro de Pasco..	1904	1·45	131·00
25.	Cerro de Pasco — Goyllaris- quizga	1905	1·45	43·00
26.	Lima—Callao	1851	1·45	14·00
27.	Lima—Chorrillos	1858	1·45	12·00
28.	" " " "	1904	1·45	13·00
29.	Lima—Magdalena del Mar	1902	1·45	8·00
30.	Callao—La Punta	1872	1·45	3·00
31.	Lima—Callao—La Punta ..	1904	1·45	15·00
32.	Lima—Herrodura	1901	1·45	17·00
33.	Callao—Bellavista	1897	1·45	3·00
34.	Cerro Azul—Cañete	1870	0·91	10·00
35.	Tambo de Mora—Chincha Alta	1898	1·00	12·00
*36.	Pisco—Ica	1869	1·45	74·00
*37.	Southern Railway	1869–1912	1·45	863·00
*38.	Ilo—Moquegua	1908	1·45	100·00

Central Railway of Peru. This railway, which is among the most remarkable in the world, runs from Callao, through Lima, up the valley of the Rimac, and pierces the Andes by the Galera tunnel at a height of 15,645 ft. It then descends to 12,180 ft. at La Oroya. At La Oroya it turns to the south-east, and follows the Mantaro valley to Huancayo. The length from Callao to La Oroya is 222 kilometres, and thence to Huancayo (123 kiloms.). It is proposed to carry it eventually via Ayacucho to Cuzco, where it will link on to the Southern Railway.

Its construction was begun under contract with the Government, in 1869, by the American contractor, Henry Meiggs, and it was opened as far as San Bartolomé (76 kiloms.) in September, 1871. The latter portion of the line was delayed by Meiggs's death in 1877, by financial difficulties, and by the war with Chile, and was only completed by the Peruvian Corporation. La Oroya

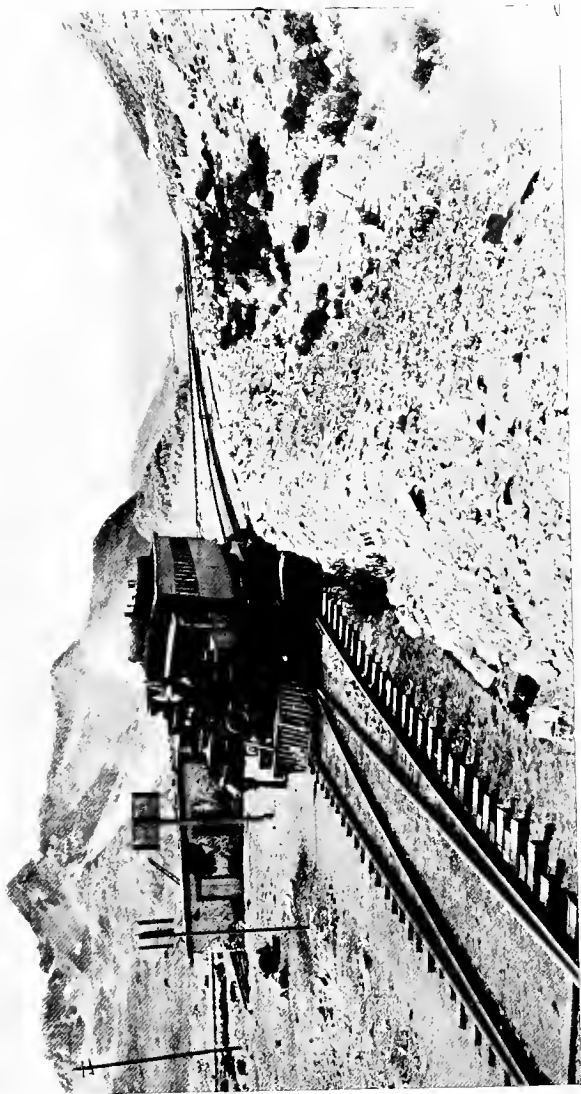
was reached in January, 1893, Huari in 1906, and Huancayo in 1908.

The branches are (1) from Lima to Ancon (38 kiloms.) ; (2) Ticlis to Morococha (14.650 kiloms.) ; (3) Tambo to La Jauja (7 kiloms.). (The branch from Casapalca to El Carmen (5 kiloms.) is a private mineral line.) The line from La Oroya to Cerro de Pasco does not belong to the Central Railway, but to the American Cerro de Pasco Railway & Mining Co.

The cost of construction has been, in all cases, very high, but in the section to La Oroya, stupendous ; it has been calculated at £12,431 per kilometre. The short Morococha branch reaches a height of 16,865 ft., surpassing that of the Galera tunnel by 1,200 ft.

The line mounts the sierra by a series of zigzags and horseshoe loops ; the gradients are sometimes as steep as 4 in 100, and there are numerous bridges, viaducts, and tunnels. At the Infernillo, the train issues from one tunnel, crosses a precipitous ravine, and passes into another tunnel on the further side. The zigzags number 17 and the tunnels 63. As might be expected, the upkeep of the line is also expensive.

Southern Railway of Peru. The Southern Railway, though less audacious in conception, is also a fine piece of engineering. The section from Mollendo to Puno was built in 1869-76. The only tunnel is just north of Arequipa. The Andes are crossed at Crucero Alto at a height of 14,660 ft. The line passes through Arequipa to Juliaca, near the north-west end of Lake Titicaca. Thence one branch runs south to Puno, and another north-west to Cuzco. The section Juliaca to Santa Rosa



Galera Junction, Oroya Railway

was completed by 1877 ; that to Marangani was opened in 1892, to Sicuani in 1893, to Checcacupe in 1907, and to Cuzco in 1909.

NOTE.—*Arica—La Paz Railway.* The approaching opening of this line will have an adverse effect on the trade of Mollendo, and will eventually divert the Bolivian traffic. It will offer a saving of time—one day instead of over three ; and it will avoid the double transhipment of cargo at Puno and Guaqui.

PROJECTED RAILWAYS.—These are numerous ; the most important schemes are (1) the *Longitudinal* line ; (2) the *Pan-American* line ; (3) *Montaña* lines.

(1) The *Longitudinal* line means the linking up of the short, isolated lines of the coast by a series of connecting lines running north and south. The line already open from Lima to Huacho is one link in such a chain.

(2) The *Pan-American* line would enter Peru from Ecuador across the river Chanchis and, like the great trunk road of the Incas, would traverse the high inter-Andine region to Lake Titicaca, passing Jaén, Cajamarca, Cerro de Pasco, Oroya, Huancayo, Ayacucho, Cuzco, and Puno ; it would enter Bolivia at or near Desaguadero. The section from Cerro de Pasco to Huancayo, and that from Cuzco to Puno, are already in existence ; and extensions of these will undoubtedly be made in the near future, though the project in its entirety will not be realised for many years.

The Chimbote-Tablones line will probably be carried into the inter-Andine region before long via Huarás and Recuay.

(3) *Montaña Lines.* Three main schemes are under consideration to join the coast with the Montaña : (a) From the port of Paita via Piura and Jaén to Limon or

some other point below the Pongo de Manseriche, on the Marañon. This route would cross the Andes at about 6,600 ft. above the sea, and would be both the cheapest to construct and the most economically profitable. Unfortunately, it lies near the frontier of Ecuador, and for the present, political and strategic reasons appear to prevent its realisation. (b) From a suitable point on the Oroya-Cerro de Pasco line to a port on the Lower Ucayali, such as Pucalpa or Port Cumaria. Though the present line scales the Andes, the distance to the Ucayali is very great. An alternative is from Oroya down the Perene valley to Puerto Wertheman. (c) In the south of the country there is a scheme to build a railway from Tirapata on the Juliaca-Cuzco line to a port on the Inambari. Traffic would then pass down this river to the Madre de Dios and so to the Madeira and Amazon. This scheme would open up the new Madre de Dios Department. Another practicable scheme is to join Cuzco with Santa Ana by either a light or a normal-gauge railway.

WATERWAYS.—*Lake Titicaca.* The Peruvian Corporation run a line of steamers on the lake, connecting the Southern Railway of Peru at Puno with the Guaqui-La Paz railway of Bolivia. The steamers also ply on the river Desaguadero.

Navigable Rivers.—The navigable rivers of Eastern Peru may be treated under two heads: (1) the Marañon or Upper Amazon and its head waters, flowing south-east from Ecuador and Colombia, and in a northerly direction from Peru; and (2) those which flow east into Brazil, joining the Amazon much lower down: of these, the

Madre de Dios and its tributaries form the chief Peruvian system.

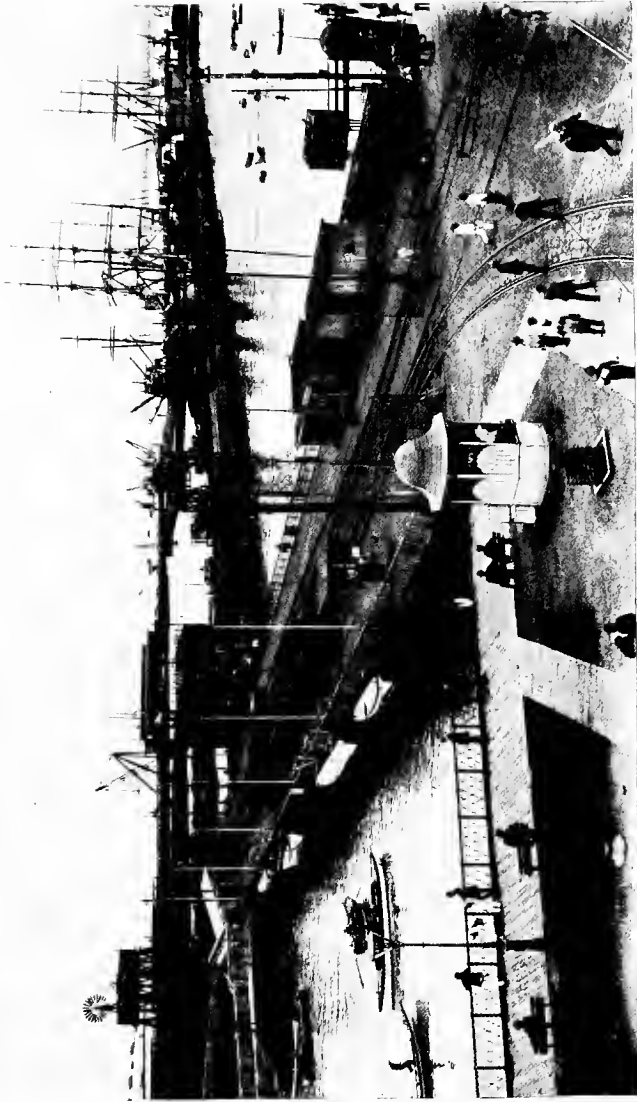
The *Amazon* is navigable for steamers of 20-ft. draught up to Iquitos, and the *Marañon* for those of 4 to 8-ft. draught to Puerto Limon, and for those of 2 to 4-ft. draught to the rapids or Pongo of Manseriche, or about 1,000 miles in all. It receives from the north the rivers Putumayo, Napo, Tigre, Pastasa, Morona, and Santiago, portions of which flow through Peruvian territory and are navigable for steamers of 4 to 8-ft. draught. From the south it receives the *Javary*, the *Ucayali*, and the *Huallaga*. The *Javary* is navigable for the larger steamers to Galvez and for the smaller to Paisandu. The *Ucayali* has numerous important affluents, including (a) the *Pachitea* and *Pichis*; (b) the *Tambo*, *Perene*, *Ene*, *Mantaro*, and *Apurimac*; and (c) the *Urubamba* and *Vilcanota*. The large steamers can ascend the whole of the lower *Ucayali*, including the ports of *Contamana*, *Cumaria*, *San Jerónimo*, and *Masissea*, and the *Pachitea* to Puerto Victoria; the smaller steamers ascend the *Pichis* to Puerto Bermúdez, the Upper *Ucayali*, the *Urubamba* to the *Mishagua*, the *Tambo* and the *Perene* to the *Pangoa* confluence.

The *Huallaga* is navigable for the larger steamers up to *Yurimaguas* and for the smaller to *Achinimisa*.

The above limits are for high water; in the low-water periods the limits are, of course, less. The southern rivers are low in August and September, while those which enter the *Amazon* from the north are low in February and March.

The *Madre de Dios* is navigable for small-draught steamers up to the confluence of the *Manu*.

By means of canoes, these limits are indefinitely extended, while for down-stream journeys, rafts are also employed. The absence of roads and railways is largely counterbalanced in East Peru by this wonderful system of natural waterways, amounting to considerably over 10,000 miles.



The Docks, Callao

CHAPTER X

PORTS AND HARBOURS

IN the matter of harbours, Peru is poorly served, for the character of the coast is such that there are no great natural harbours like the Bay of Rio and the Plate estuary on the east coast of the Continent; and such anchorages as the Peruvian coast affords are rendered difficult by the Pacific swell, which at some seasons of the year is so violent as to render shipment impossible.

CALLAO AND THE SOUTHERN PORTS.—The principal port and centre of shipping interest is *Callao*, through which about a third of the foreign trade of the country passes. It is situated in lat. S. $12^{\circ} 3'$, on Callao Bay, a natural inlet, or rather curve of the coast, between the mouth of the river Rimac and La Punta, a narrow promontory jutting out to the south-west. The bay is still further sheltered from the south-west by the island of San Lorenzo, which, about $4\frac{1}{2}$ miles in length, rises over 1,200 ft. above sea-level, and lies about four miles distant from the mainland. La Punta, the promontory reaching out from the mainland towards San Lorenzo, is known at its extremity as Camotal Bank.

The town, together with the castle and forts, extends about two miles along the beach fronting the bay, and, rising gradually from the shore, presents probably the best appearance of any of the coast towns of Peru. The bay is safe for vessels of any tonnage, and has a depth of $3\frac{1}{2}$ fathoms close to the coast. Heavy rollers

are sometimes experienced, but landing is seldom interrupted at any of the piers. There are several piers with wharves, alongside which vessels may lie to discharge and load; the Customs basin has a minimum depth of 23 ft., while a coaling wharf gives 21 ft. at all times. Repairing docks exist, with ample facilities for the repair of either hulls or machinery. Among other facilities may be mentioned a floating dock, 300 ft. in length, and capable of taking a vessel of 3,000 tons displacement and 21 ft. draught. Coal is plentiful and obtainable at a moderate price, and fish, fruit, and vegetables for supply to ships form industries in the town.

The principal means of communication by sea is afforded by the steamers of the P.S.N. Co. and those of the C.S.A. de V., each line maintaining a service which allows of two calls a week, the former company connecting directly with Panama northward and Liverpool, Southampton, New York, and European ports via Cape Horn. The Kosmos and other lines maintain a regular service between Callao and other west coast ports; and there is a direct service of steamers between Callao and Hong-Kong *via* Panama and Yokohama. A submarine cable provides telegraphic communication with all parts.

The climate of Callao is good throughout the year, the temperature varying between 64° and 74° Fahr. A sea breeze mitigates the heat, and the nights are cool and pleasant. Fogs are common from December to March, and throughout the year the early mornings are characterised by mists. Yellow fever occurs at times, but epidemic diseases are rare on the whole.

Callao is connected with Lima, the capital of Peru, by

two railways, each seven miles in length, by which an hourly service is maintained; and there is also an electric tramway, while shaded avenues are available for wheeled vehicles and pedestrians. One of the two railways forms the seaward termination of the famous Oroya line (for which, see Chapter on *Inland Communication and Transport*). Lima itself stands on the banks of the Rimac, chiefly on the southern bank, practically at the foot of the coastal cordillera, and is laid out in the usual chess-board fashion of South American cities. The chief building is the old Spanish cathedral on the "Plaza Mayor," the principal square of the city. The foreign element in Lima consists mainly of German, French, and Italian settlers; while the American and English residents congregate principally in Callao.

The following tables, taken from the Consular Report for Peru, 1911-12, give details of the shipping which used the port in 1912—

Return of Shipping of all Nationalities which Entered and Cleared in the Foreign Trade of the Port of Callao during the Year 1912

(a) STEAM VESSELS

ENTERED

Nationality.	With Cargo.		In Ballast.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
British	177	541,849	29	48,626	206	590,475
Chilean	112	198,766	1	210	113	198,976
French	6	18,119	—	—	6	18,119
German	80	278,574	1	2,408	81	280,982
Japanese	12	49,814	—	—	12	49,814
Norwegian ..	9	24,500	—	—	9	24,500
Peruvian	50	112,532	—	—	50	112,532
United States	1	3,209	1	981	2	4,190
Total	447	1,227,363	32	52,225	479	1,279,588

CLEARED

Nationality.	With Cargo.		In Ballast.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
British	140	431,844	28	61,335	168	493,179
Chilean	103	183,147	—	—	103	183,147
French	6	18,119	—	—	6	18,119
German	73	253,472	—	—	73	253,472
Japanese	11	46,574	—	—	11	46,574
Norwegian	9	24,500	—	—	9	24,500
Peruvian	47	106,092	—	—	47	106,092
United States	1	3,209	1	981	2	4,190
Total ..	390	1,066,957	29	62,316	419	1,129,273

(b) SAILING VESSELS

ENTERED

Nationality.	With Cargo.		In Ballast.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
British	14	24,452	2	2,886	16	27,338
Argentina	1	144	—	—	1	144
Ecuadorean	1	251	—	—	1	251
French	2	4,284	1	1,944	3	6,228
German	10	18,579	—	—	10	18,579
Italian	2	2,649	1	1,409	3	4,058
Norwegian	14	21,365	2	2,379	16	23,744
Peruvian	3	2,955	—	—	3	2,955
Russian	3	4,838	—	—	3	4,838
Swedish	—	—	1	1,876	1	1,876
United States	26	18,320	—	—	26	18,320
Total ..	76	97,837	7	10,494	83	108,331

CLEARED (IN BALLAST)¹

	Vessels.	Tonnage.
British	11	18,368
French	5	10,266
German	11	20,052
Italian	2	2,818
Norwegian	17	25,419
Peruvian	5	4,796
Russian	3	4,838
Swedish	1	1,876
United States	24	17,052
	79	105,485

For the Imports and Exports, see (1) *Callao* in *List of Towns* ; (2) Chapter on *Imports and Exports*.

South of Callao, the principal ports are Cerro Azul, Tambo de Mora, Pisco, Port Chala, Quilca, Port Mollendo, Islay, and Ilo. Arica, being situated in the province of Tacna, is now a Chilean port.

Cerro Azul is the port for the beautiful and fertile valley of Cañete, in which sugar is largely grown. This, together with rum as a by-product, is mainly exported from Cerro Azul, where steamers of the P.S.N. Co. and the C.S.A. de V. call regularly. Landing here is difficult at all seasons, owing to the heavy surf ; but a wharf has been constructed in connection with the works of Casa Blanca and Quebrada, which facilitates the landing of goods for these establishments. There is telegraphic communication with Lima.

Tambo de Mora is situated at the mouth of the Chincha river (15½ miles north of Pisco). It is a small settlement, and a port of call for the coasting steamers of the P.S.N. Co. and the C.S.A. de V. Landing is difficult, and at times dangerous, on account of the heavy surf.

Pisco, the chief port in the province of Ica, is situated on Pisco Bay. This bay is formed by the peninsula of Paracas to the south, and protected by the Balleista Islands and the Chincha Islands on the west. It is a regular port of call for the coasting steamers of the principal lines, and is connected by rail and telegraph with Ica, the capital of the province. Imports and exports total about a quarter of a million sterling annually ; the chief exports are cotton, cotton seed and oil cake, wool, goatskins, hides, and mineral ores. Pisco Bay

affords safe anchorage, and there is at the north of the town an iron pier, 600 yds. in length, with 18 ft. of water alongside. The railway, at present extending only 45 miles inland to Ica, is intended eventually to connect the rich silver mining districts at the head of the Chunchanga gorge with the coast.

Port Chala is the nearest coast port to the city of Cuzco, and trades principally in hides, wool, and mineral ores, there being good copper veins in the vicinity of the port. The steamers of the P.S.N. Co. and the C.S.A. de V. call regularly, but landing is generally dangerous, owing to the heavy Pacific swell ; and the trade of the port is inconsiderable.

Quilca, at the mouth of the river of the same name, is visited every three weeks by the steamers of the two principal lines ; but there are no landing facilities, and the trade of the port is very small. There is telegraphic communication with all parts.

Mollendo, now that Arica belongs to Chile, is the principal port of southern Peru. It is the coastal terminus of the railway to Arequipa ; to Puno, on the shore of Lake Titicaca ; and Cuzco. The population of Mollendo is estimated at 7,000, and its imports and exports, of which the former are slightly in excess of the latter, at about a million sterling. The principal exports are copper, silver, borate of lime, and wool. (See also Chapter on *Imports and Exports*.) A noteworthy fact in connection with the town is that its water supply is brought from Arequipa, 100 miles distant, by iron pipes. The anchorage is entirely unprotected, and from June to October the swell is often so violent as to prevent the

landing of goods in lighters. A scheme is under way, however, for the construction of a breakwater and dock for the accommodation of lighters. The steamers of the two principal lines, and also those of the Kosmos Co., call here regularly; and the railway line affords communication with Cuzco, La Paz, and the Bolivian railway system, and with the Chilean port of Antofagasta via La Paz.

The following tables, taken from the Consular Report for Peru, 1911-12, give details of the shipping which used the port in 1912—

Return of Shipping of all Nationalities which Entered and Cleared in the Foreign Trade of the Port of Mollendo during the Year 1912

(a) STEAM VESSELS
ENTERED (WITH CARGO)

	Vessels.	Tonnage.
British	280	872,776
Chilean	101	181,560
German	110	372,160
French	8	34,000
Norwegian	6	16,174
Japanese	7	20,250
Italian	2	5,900
Peruvian	48	95,230
United States	1	4,200
Total	563	1,602,250

CLEARED

Nationality.	With Cargo.		In Ballast.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
British	270	840,026	10	32,750	280	872,776
Chilean	101	181,560	—	—	101	181,560
German	106	358,560	4	13,600	110	372,160
French	8	34,000	—	—	8	34,000
Norwegian	3	8,360	3	7,814	6	16,174
Japanese	7	20,250	—	—	7	20,250
Italian	2	5,900	—	—	2	5,900
Peruvian	48	95,230	—	—	48	95,230
United States	—	—	1	4,200	1	4,200
Total	545	1,543,886	18	58,364	563	1,602,250

CLEARED					
(b) SAILING VESSELS					
ENTERED (WITH CARGO) AND CLEARED (IN BALLAST)					
				Vessels	Tonnage.
German	..	..	..	3	3,950
Norwegian	..	..	..	2	2,560
United States	..	..	..	2	2,210
				—	—
Total	..	..	..	7	8,720
				—	—

Islay. Up to the time of the building of the railway line from Mollendo to Arequipa, Islay, 5 miles north-west of Mollendo, was the principal port of the province; but, except for a telegraph station, the place is now practically deserted. The bay affords better anchorage than that at Mollendo, and an extension of the railway would probably revive the trade of Islay; a pier is still in existence, but the "swell" makes landing difficult, though not to such a degree as at Mollendo.

Ilo (or *Ylo*) is the most southerly port of Peru, and the seaward terminus of the Moquegua railway. The anchorage is an open roadstead, slightly protected to the south by Coles' Point, the last promontory of the Peruvian coast to the south. The town of Ilo is small, and the trade of the port does not exceed a total of £20,000 sterling annually. The coasting steamers of the two principal lines call regularly, and telegraphic communication is available with all parts. The railway from Ilo was intended to connect with Lake Titicaca, but it is unlikely to reach further than Moquegua for some years.

NORTHERN PORTS.—Northward from Callao a railway runs parallel with the coast to *Ancón*, a bay which affords shelter from all southerly winds. The population of the town of Ancon is little over 300, but the place is a very

popular bathing resort for the inhabitants of Callao and Lima. Twelve miles northward from Callao is situated *Chancay*, in a bay which is suited only for small coasting vessels. Chancay is the centre of a considerable sugar industry, being connected by tram lines with a number of plantations in the vicinity. A railway links up Chancay with Lima to the south and Palpa to the north-east, as well as extending northward to Huacho and Huara.

The next point of importance on the coast is *Huacho*, a town of 9,000 inhabitants. It is situated about a mile to the north of Huacho Bay, which affords good anchorage, and is visited regularly by the steamers of the two principal lines, the P.S.N. Co. and the C.S.A. de V. There is a pier for loading and unloading cargoes, and the town is connected with Ancón by railway. Another line southward via Salinas connects the port with Chancay and Lima.

Supe Bay, at the mouth of the river Pativilca, is chiefly visited by coasting vessels, though the steamers of the two principal lines call regularly. The town of Supe is situated midway between Barranca and San Nicolás, a railway about 20 miles in length connecting the three towns. Sugar and maize are the chief products, and a brisk trade in these articles is maintained by the coasting vessels which frequent the port.

From *Casma*, a small port in the Department of Ancachs, a good quality of cotton is exported in small quantities, and this trade is capable of considerable development; corn is also exported, and the steamers of the two principal lines call regularly. *Samanco Bay*

a few miles farther north, is the most extensive on the coast of Peru to the north of Callao, being 3 miles in depth. Rice, cotton, and cereals are the chief articles of export, and the coasting steamers of the P.S.N. Co. call regularly.

Eight miles north of Samanco is situated *Ferrol Bay*, well sheltered by Blanca Island and the Ferrol group. *Port Chimbote*, situated on the bay, is the seaward terminus of a narrow gauge railway of over 150 miles in length, which follows the course of the river Santa and then turns south along the Callejos de Huarás to Huarás, the capital of the Department of Ancachs, and centre of a district rich in coal and mineral ores. Chimbote itself has a population of about 1,500, and is the centre of a district well suited to sugar cultivation; the remains of Inca irrigating channels show that the district was at one time much more cultivated than at present, and that the population was far greater. Shipping to the total of about 250,000 tons visits the port annually, although it is not a port of entry, and the principal exports are sugar, coffee, and mineral ores. There is telegraphic communication with all parts, and the vessels of the principal lines call regularly.

Santa Bay, a few miles north of Chimbote, is the site of a small and rarely visited settlement; the river Santa, which enters the sea here, is one of the largest of the Peruvian coastal rivers, but it is quite unnavigable. The district is mainly devoted to sugar growing.

Salaverry, situated at the southern extremity of a railway which traverses the fertile valleys of Chicama and Chimu, in the Department of La Libertad, is a port

of growing importance, devoted chiefly to the export of sugar. The railway runs to the shore, and an iron pier renders landing and shipping of goods safe at all times. Steamers of the principal lines call here regularly, and shipping to the extent of about 500,000 tons visits the port annually. Salaverry shares the export trade of the Chimu valley with *Huanchaco*, about 12 miles farther north along the coast. The latter port affords a less protected anchorage, and in spite of the existence of a pier over 150 yds. in length, landing is interrupted at times by the Pacific rollers, which are at their worst in May and June on this part of the coast. Landing and shipping of goods is effected by means of lighters; and the coasting steamers of the P.S.N. Co., the C.S.A. de V., the Gulf, Kosmos, and other lines call to take in cargoes of sugar, the products of the fertile valleys of Chicama and Chimu.

About 50 miles farther to the north, *Pacasmayo*, at the mouth of the river of the same name, forms the seaward terminus of the railway which extends inland to Chilite and northward to Guadalupe. A pier, 1,000 yds. in length, fitted with 10-ton cranes, makes this one of the best ports, as far as shipping facilities are concerned, on the Peruvian coast. The trade is chiefly in sugar and rice, grown in the fertile valley of the Rio Pacasmayo. Steamers of the two principal lines call regularly, and the exports attain a value of about £130,000 annually.

Eten Point, 33 miles farther north, is the site of a pier nearly 900 yards in length, which facilitates the loading of boats and lighters. The building of this pier has diverted shipping from *Lambayeque*, which, situated

about 12 miles farther north, had the reputation of the worst anchorage on the Peruvian coast. Eten Point is now the terminus of a railway which runs north to Chiclayo, Lambayeque, Jayanca, and Ferreñafe, and the exports of the district which the railway serves, passing through the port, are valued annually at about £250,000. The steamers of the two principal lines call regularly at Eten, and there is telegraphic communication with all parts.

Northward of the district served by the port of Eten, the desert of Sechura stretches almost to Piura, and the coast is devoid of anchorages until *Paita* is reached. This is the best natural port on the Peruvian coast, being so well sheltered that the shipping of cargo is never interrupted. The population of the town is estimated at 3,000, and the trade of the port, both inward and outward, is steadily increasing. The principal exports are charcoal and firewood, cotton, cotton-seed, "Panama" hats, salt, and tobacco; while the chief imports are flour from Callao, lumber, bricks, galvanised iron, and general merchandise. Paita is sometimes named the petroleum port of Peru, but this is a mistake, as the petroleum trade is all done through the ports of Talara and Lobitos, farther to the north. Paita is considered one of the healthiest, and it is certainly one of the driest places in Peru, rain only occurring at intervals of years. About 700,000 tons of shipping visit the port annually; the two principal lines maintain a weekly service between Callao, Paita, and the Panama Isthmus, and all lines serving the west coast of Peru call here. There is telegraphic and cable communication with all parts, *via*

either Panama or Callao ; and a railway extends inland from the port to Sullana and Piura, a distance of nearly 60 miles. Two piers afford excellent facilities for landing and loading cargoes.

The following tables, taken from the Consular Report of Peru for 1911-12, give details of the shipping which used the port in 1912—

Return of Shipping of all Nationalities which Entered and Cleared in the Foreign Trade of the Port of Paita during the year 1912

(a) SAILING VESSELS. ENTERED

Nationality.	With Cargo.		In Ballast.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
Argentine	1	144	—	—	1	144
Columbian	7	330	—	—	7	330
Ecuadorian	3	172	—	—	3	172
Peruvian	6	1,278	3	376	9	1,654
Total	17	1,924	3	376	20	2,300

CLEARED

Nationality.	With Cargo.		In Ballast.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
Argentine	1	144	—	—	1	144
Columbian	2	78	—	—	2	78
Ecuadorian	3	172	—	—	3	172
Peruvian	2	26	2	84	4	110
Total	8	420	2	84	10	504

(b) STEAM VESSELS. ENTERED

Nationality.	With Cargo.		In Ballast.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
British	100	242,507	36	93,539	136	336,046
United States ..	1	3,209	—	—	1	3,209
Chilean	85	153,975	27	42,782	112	196,757
Peruvian	48	108,523	2	154	50	108,677
German	7	21,996	3	9,856	10	31,852
Norwegian	4	10,925	1	2,597	5	13,522
French	—	—	1	3,263	1	3,263
Total	235	541,135	70	152,191	315	693,326

CLEARED

Nationality.	With Cargo.		In Ballast.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
British	84	195,707	35	106,050	119	301,757
Chilean	75	138,048	37	58,709	112	196,757
Peruvian	47	105,851	—	—	47	105,851
German	3	9,740	1	3,014	4	12,754
French	1	3,263	—	—	1	3,263
Total	210	452,609	73	167,773	283	620,382

Talara Bay, 34 miles north of Paita, is a port concerned exclusively with the petroleum trade, and is the property of the London and Pacific Petroleum Co., which owns the wells of Negritos, about 7 miles south of the bay. The oil is brought to the coast by means of a pipe line, and the exports consist mainly of crude petroleum, which is shipped to Chile, principally—small quantities also being sent to the United States and to Ecuador. In the year 1912 about 60,000 metric tons of crude petroleum were exported from Talara, together with about 9,000 tons of gasoline and kerosene.

Lobitos. The company known as the Lobitos Oilfields, Ltd., whose port is on the coast between Paita and Talara, exports about two-thirds as much oil as is sent out from Talara annually. A third small enterprise, known as the Zorritos oilfields, has an output of nearly 20,000 tons of crude petroleum and other products annually. These places are all dependent on Paita for regular communication with the rest of the world, there being no regular steam service. Both at Talara and Zorritos, piers exist to facilitate shipping of goods, and that at Talara accommodates vessels of up to 28 ft. draught.

Tumbes, the most northerly port of Peru, is near the site of the first Spanish settlement in the country, and is situated on the Tumbes river. The steamers of the two principal lines call regularly, and the chief exports are coal, timber, and general cereal produce. The town is situated about 12 miles up the river, which is not navigable; the port is of only minor importance, though in the period of Inca government, the spot was one of the most populous and prosperous in Peru.

So far as foreign merchandise is concerned, Callao, Mollendo, and Paita are the chief ports; the remainder are engaged almost solely in the coastal trade, and, further, are not served by steamers connecting direct with Europe, so that transhipment of goods is necessary. In the year 1912, the foreign vessels entering Callao amounted to a total tonnage of nearly 1,400,000, while those entering Mollendo totalled over 1,600,000. In the same year, the shipping entering the port of Paita amounted to about 700,000 tons. In all cases, the British shipping far exceeded that of any other nationality, as the P.S.N. Co. exceeds all other lines in importance along the west coast.

RIVER PORTS.—*Iquitos*, the river port of Peru, is situated on the Amazon river, about 2,500 miles from its mouth, and is the capital of the department of Loreto, which comprises the greater and more valuable territory of the *montaña* region.

The following tables, taken from the Consular Report for Iquitos, 1912, show the shipping which used the port, and the chief exports of the district in 1912—

Return of British Shipping Entered and Cleared in the Foreign Trade of the Port of Iquitos during the Year 1912

STEAM VESSELS					
ENTERED (WITH CARGO)					
Vessels.					Tonnage.
United Kingdom	..	..	..	9	11,947
United States	..	..	..	9	7,302
Total	..	..	..	18	19,249
CLEARED (WITH CARGO)					
Vessels.					Tonnage.
United Kingdom	..	..	..	10	13,091
United States	..	..	..	8	6,608
Total	..	..	..	18	19,699

Table showing Exports of Rubber from Iquitos during the Years 1907-12

Month.	1907.	1908.	1909.	1910.	1911.	1912.
	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.
January ..	399,516	199,290	—	67,160	249,430	404,156
February ..	226,810	284,168	331,345	401,053	155,219	231,706
March ..	206,993	117,106	188,947	46,582	9,029	270,805
April ..	278,781	175,263	147,442	182,701	344,986	287,423
May ..	281,753	245,436	108,449	172,391	112,584	3,935
June ..	25,552	—	289,422	139,021	62,157	151,574
July ..	246,745	254,683	—	17,454	83,757	119,354
August ..	—	—	203,372	235,600	151,900	178,388
September ..	264,919	206,424	—	297,528	29,978	303,870
October ..	234,055	158,234	514,041	151,516	587,376	—
November ..	366,232	215,655	293,045	260,112	279,101	540,951
December ..	365,051	528,893	446,003	323,073	16,370	321,802
Total ..	2,896,407	2,385,152	2,522,066	2,294,191	2,081,887	2,813,964

Table showing Classification and Destination of Rubber Exported from the Port of Iquitos during the Year 1912

	Havre.	Liverpool.	Hamburg.	New York.	Total.
	Kilos.	Kilos.	Kilos.	Kilos.	Kilos.
Fine rubber ..	318,206	434,923	75,908	42,898	871,935
Entrefine ..	26,494	39,977	1,681	1,692	69,844
Sernamby ..	150,634	169,834	27,257	14,407	362,132
Caucho ..	35,578	14,278	256	4,631	54,743
Sernamby de Caucho ..	359,374	334,740	76,496	37,422	808,032
Weak fine ..	144,081	318,734	146,235	38,228	647,278
Total ..	1,034,367	1,312,486	327,833	139,278	2,813,964

Table showing Exports of other Products during the Year 1912

		Havre.	Liver- pool.	Ham- burg.	New York.	Callao.	Total.
Ivory nuts	Kilos	504,755	406,062	120,410	154,447	—	1,185,674
Hides		1,073	19,144	—	—	—	20,217
Panama hats	"Doz.	—	—	—	—	—	188
Cedar logs	Kilos	—	—	—	4,000	—	4,000
Hard wood	.. ..	—	—	—	313	—	313
Silver coins	Soles	—	33,200	—	—	23,000	56,200

The river ports of *Nazareth* on the Javary, *Yurimaguas* on the Huallaga, *Contamana* on the Ucayali, and to a certain extent, *Caballo Cocha* on the Amazon below Iquitos, send their produce to Iquitos, as it is the only point on the upper river at which ocean-going vessels discharge and load cargo. Rubber, the chief export, is almost stationary in volume, having reached its highest point in 1907, when the total was 2,896,407 kilos. After this, the rate of export fell considerably, but rose again in 1912 to 2,813,964 kilos. The rate of export is not likely to increase, as there is no cultivation of the trees. The rubber is gathered from the forests by natives, and, as there is no planting, the supply is bound to decrease in course of time unless a system of planting is adopted. On the other hand, the trade in vegetable ivory is increasing at a rapid rate, having risen from 374 kilos. in 1907 to no less than 1,185,674 kilos. in 1912. Improved plant for peeling the nuts renders classification of the exports easier, and thus increases the value of the product in foreign markets. Like the rubber trees, the nut-bearing palms are an uncultivated growth; but, unlike the rubber, the collection of the nuts does not damage the trees, and as the supply is practically unlimited, the

trade is likely to increase to a far greater extent. Havre and Liverpool are the ports to which the greater part of this product is consigned. Other exports of minor importance are cedar logs, hides, and "Panama" hats.

The Iquitos Steamship Co., Ltd., maintains two regular services from Iquitos: one to Liverpool and Continental ports, and the other to New York. A company known as the Amazon Steam Navigation Co., with a monthly service between Iquitos and Pará via Manaus, was a competitor with the first-named company until the end of 1911, but since then its boats have ceased running.

Communication with Lima is effected by means of two routes: the "Northern" and the "Central"—the former being the better of the two between May and November, the latter being preferred for the other months of the year. The "Northern" route runs by way of Yurimaguas, Chacaboyas, and Cajamarca to the coast at Pacasmayo; while the "Central" follows the rivers Ucayali, Pachitea, and Pichis for 1,000 miles, the remaining 450 miles of the journey being performed by mules (see pp. 111-4). Iquitos has long been agitating for a direct railway connection with Lima; and, in order to satisfy this need, work has been begun on an extension of the Oroya railway to Pucallpa, on the Ucayali river, and only 700 miles distant from Iquitos. Telegraphic communication with Lima is maintained by means of the Telefunken wireless system, a tower having been erected at Iquitos, by means of which direct communication has been established with the wireless tower on the Cerro San

Cristóbal, near Lima. Wireless communication has also been established with El Encanto, in the Putumayo district ; and it is hoped that soon the private wires existing between Iquitos and Manáos may be augmented by a line open to commercial use.

CHAPTER XI

AGRICULTURE—FOREST PRODUCTS—GUANO— LAND TENURE AND COLONISATION—GRAZING AND CATTLE-BREEDING

A REVIEW of the agriculture of Peru necessitates once more a consideration of the three great zones into which the country is divided—the coast, the Andine region, and the *montaña*—with their vast climatic and other difference.

The coastlands possess, generally speaking, a deep and fertile soil, a warm and uniform climate, and practically an entire absence of rain, frost, hail, and violent storms. In short, the conditions are favourable in an unusual degree to scientific cultivation, except for the lack of adequate water supply. Agriculture in that zone depends almost entirely on artificial irrigation ; where this is not available, the soil becomes absolute desert.

Rainfall begins and increases as the land rises to the inter-Andine region. The soil is still thick and fertile, though less so than on the coast. The irrigated valleys produce many of the large crops found on the coast, together with coca ; while potatoes and various cereal crops (including in this term, maize, alfalfa, and quinoa), are grown on the uplands at elevations extending as high as 13,000 ft. or more.

East of the Andes, new climatic conditions are encountered. The rainfall is abundant, amounting to an average of 70 in. per annum ; from May to October the rains are, in the lower parts, torrential. The vast

slopes provide a system of natural irrigation; the "humus" is usually 15 ft. or more in depth—virgin soil of extraordinary fertility. While the upper regions produce freely most of the crops grown on the coast, agriculture on a considerable scale has hardly begun as yet; and the only things exploited on a large scale are the forest products—rubber and ivory nuts (*tagua*).

Facilities for education, inter-communication, transport, and export have naturally promoted the development of scientific agriculture on the coast and the more accessible inter-Andine valleys. Modern methods and machinery are very largely employed. On the other hand, in the high plateaux and in the scanty settlements of the *montaña* the most primitive implements and methods are usual, owing chiefly to the great cost and difficulty of transport.

The area susceptible of cultivation on the coast is estimated at 50,000,000 acres, of which only about 2,000,000 are now under cultivation. The evidence of a great population in districts now desert would seem to imply, in the time of the Incas, a skilful system of irrigation, which the Spanish conquerors, through ignorance or pre-occupation in the hunt for gold, suffered to decay. The reclamation of these lands is one of the cares of the Ministry of Development (*Fomento*). Artesian wells were sunk in 1861; more recently, under the direction of American hydraulic engineers, irrigating canals have been constructed on the rivers Chira and Piura, in Lambayeque and in the Chicama valley. By such means, and by storage reservoirs, the area is being gradually extended.

The west coast is also favoured by the proximity of the guano islands; the ready supply of fertilisers has rendered unnecessary the old system of allowing land to lie fallow for a year.

There are drawbacks, however, even in this favoured region. Shortage of water has been mentioned; shortage of labour is also a source of difficulty—to some extent met by the importation of indentured Japanese coolies. In the past, too large tracts were in the possession of single proprietors, who left much land uncultivated from lack of enterprise or capital. Various systems of sub-letting have partially eliminated this feature; but it remains true that most of the best land is held in large estates.

The Government foster agriculture in various practical ways. A National School of Agriculture and Veterinary Science was established at Lima in 1902. A monthly bulletin and numerous educational papers and pamphlets are issued by the Ministry of *Fomento*. An experimental station, with a large number of acres under cultivation has been established at Santa Beatriz, near Lima, to study the various crops grown in the country; and another at Chancay is devoted to the study of cotton plants. Seeds and special plants are imported, and assistance is given to cultivators against pests, blight, etc. There is a School of Botany at Lima; and a large and flourishing National Society of Agriculture, which issues a weekly newspaper, *El Agricultor Peruano*. As a result, the large *haciendas* are mostly under the direction of scientifically-trained and qualified managers.

The principal crops cultivated in Peru are—

SUGAR.—Sugar is grown up to 4,500 ft. above sea-level in the west of the country, and up to 6,000 ft. east of the Andes. The total production is not far short of 200,000 tons per annum, and the home consumption is about 30,000 tons. The best is grown in the northern coast valleys, in the departments of Lambayeque, La Libertad, and Lima; the largest estates are in the valleys of Chicama and Cañete. The acreage is under 200,000, about half of which is planted with cane.

The cane grows to a height of 8–10 ft. in about eighteen months, when cutting begins. The product per acre, both in weight of cane and in proportion of sugar, is easily the best in the world, being about double that of Java; the proportion of sugar is over 14 per cent. There are usually three crops, but cutting is practically continuous. The total annual value is about £2,000,000.

COTTON.—Cotton is indigenous to the country, and has been cultivated from time immemorial. The principal plantations are in the departments of Piura, Ica, and Lima; the area under cultivation is increasing. Several varieties are grown: (1) the native Peruvian, or vegetable wool (*Gossypium peruvianum*), in Ica and Piura; (2) the Egyptian (*G. herbaceum*), in Ica and Lima; (3) the sea-island (*G. barbadense*) and the Peruvian Mitafifi, near Huacho and Supe; (4) smooth cotton from American seed. The first of these grows to a height of 10 to 16 ft., and gives a first, but small, crop eight months after sowing; the crop increases each year up to the sixth. The plant stands drought well, and requires but one watering. The trees are planted at intervals of about 15 ft., the interspace being occupied

with vegetables and maize ; no ploughing is needed. Two crops a year are obtained : in June–Oct. and Jan.–March. The product, known under the names of “full rough” and “moderate rough,” is mixed with wool in the manufacture of woollen textiles.

The Egyptian cotton grows to a height of about 4 ft., and yields for two or sometimes three years, beginning six months after sowing. It needs several waterings, but, on the other hand, is entirely free from weevil-blight.

These two varieties are chiefly grown at present.

Peru ranks twelfth among the cotton-producing countries of the world. Increase of production is merely a matter of irrigation, other conditions being as favourable as those of Egypt.

RICE.—Rice is essentially a coast crop, grown chiefly in Lambayeque and the Pacasmayo valley of La Libertad. It is of good, but variable, quality, depending on the advance or delay in the floods of the rivers in Spring. The crop, which matures five months after planting, averages from 25,000 to 30,000 tons, with a value of about £500,000. A periodical flooding of the fields is necessary, but little ploughing. Two varieties are grown : “Carolina” and Jamaican. No industrial use as yet is made of the straw. Three crops per annum are usually obtained. The quantity grown is insufficient to satisfy the home market, though about one-tenth is exported to neighbouring countries.

MAIZE.—The finest maize in the world is grown in Peru. It is an indigenous product, cultivated, like potatoes and cotton, from time immemorial. It is grown in all parts of the country up to a height of 11,500 ft., and is one of

Market, Huancayo



the mainstays of the country ; the grain is used as food for both man and beast, and the stalks are used as fodder. Three, and occasionally four, crops are reaped annually. It is all consumed in Peru. The finest quality is grown in Cuzco, where the grains are of the size of large beans. On the coast, the district of Chancay in Lima, is famous, and produces about 10,000 tons per annum.

POTATOES.—The potato is an indigenous product, probably developed from a bitter tuber still found wild. It is grown in great perfection all over the sierra departments up to, and even beyond, a height of 13,000 ft. With maize, it forms the chief food of the *Cholo* Indians. Two crops annually are gathered.

The *yam* (three crops annually), *manioc* (one crop), and other tuberous plants are also cultivated.

CEREALS.—Cereal crops—wheat, barley, oats—are grown at heights from 5,000 to 11,500 ft. Among these we may particularise *Alfalfa* or Lucerne, used largely for fodder, and *Quinua*, an indigenous plant, much used by both Indians and whites ; the latter is very prolific, and grows freely in poor soils to a height of 13,500 ft.

COFFEE.—The best coffee is grown in the sierra, in the districts of Choquisongo and Carabaya (Puno), Chanchamayo and Perene (Junín), Paucartambo (Cuzco) and Huánuco. On the coast, the best district is that of Pacasmayo.

Five hundred plants are set per hectare of ground ; two crops are gathered annually, averaging 1 lb. for each tree in its third year (or 800 to 1,000 lb. per acre).

In one colony at Chanchamayo, there are thirty-three coffee plantations, with 1,700 acres—"2,000,000 trees."

The supply is enough for home needs, and no coffee is imported. The export is small, and admits of great development. The Peruvian Corporation owns a concession of 2,750,000 acres, less than half of which is at present cultivated.

GRAPES.—Grapes and other fruits can be grown all along the coast valleys; the chief vineyards are from Lima southwards to Moquegua. The best are in the Campiña, near Chíncha Alta (Ica). Though the vine was certainly introduced as early as 1557, and the crop is, even in bad years, superior to the average European crop, yet viticulture has been till recently much neglected. The vineyards are usually small and attached to *haciendas* growing other crops. The grapes are grown on stocks, planted in September, about 8 ft. apart, and supported at first on wild canes; later, trellises of bamboo or willow are put up, resting on *adobe* columns. The average yield is 900 gallons of wine per acre.

Of late years, foreign cuttings have been imported and the culture improved. The chief varieties are the Italia and Albilla for white wines, and Quebranta, Moscatel, Negar, and Moyar for red wines; a pink Italia gives an admirable fruit for the table. The Quebranta is the most prolific, and is grown in almost all the wine-districts. (For the production of wine and spirits, see under *Manufactures*.)

FRUIT.—There are many other fruits which grow in great abundance in the valleys throughout Peru (see under *Flora*), but little attention has been yet devoted to their production on a large commercial scale.

OLIVES.—The olive was imported from Seville in the

sixteenth century, and found in Peru conditions which suited it admirably. It is thoroughly acclimatised, and excels those of Seville and California. Nevertheless, no great attention has been paid to it. About 70,000 lb. are exported annually. The yield of oil is about 30 per cent., and the supply is insufficient to meet the demands of the home market. With further plantation, and the introduction of modern methods and machinery, great possibilities of development in the oil trade exist.

TOBACCO.—Tobacco is grown both on the coast and in the *montaña*, but only in small plantations, and by primitive and unskilled methods. From five to eight crops are gathered annually; the total yield of the country is probably about 1,000 tons. The best grades are grown at Jaén, Tumbes, Jeberos, and Huancabamba. This is a crop which offers very great possibilities of profitable development in the future.

COCA.—Coca, a forest product indigenous to Peru and Bolivia, is cultivated in numerous plantations in the sierra departments of Cuzco, Huánuco, and Junín. Yauyos (Lima) and Otusco (La Libertad) are the only parts of the "coast" district where it is largely grown. It is grown in warm valleys at an elevation of 3,500 to 7,000 ft., with temperature averaging 50–80° Fahr. The soil should be clayey, with iron, but no salts. The plant requires frequent rain, but not marshy ground, and is grown on the slopes of the valleys. Three or four crops are reaped annually, the first eighteen months after planting; the yield continues for forty years. Considerable care is needed both in plucking and in preserving the leaves.

There is a large export both of leaves and of cocaine, but it is difficult to estimate the total produce of coca, as the home consumption by the Indians is very large.

COCOA.—Cocoa grows wild in the *montaña*, and is doubtless one of the crops naturally suited to that region, and one which will be planted extensively there in the future. At present, the best cocoa is grown in the department of Cuzco. It is practically all consumed in the country. Planting is extending in the Perene valley (Junín), where some 200,000 trees have been recently set. The crop is continuous throughout the year.

MISCELLANEOUS.—Among minor crops may be mentioned Ramie or China grass; haricot beans (each of these gives four crops annually); flax and hemp (two crops annually); bananas (chiefly in the *montaña*); the castor-oil plant (*higuerilla*); and mulberry trees for silkworm culture.

FOREST PRODUCTS.—With the exception of rubber and vegetable ivory or *tagua*, there is as yet hardly any commercial exploitation of the forest wealth of Peru. The exportation of Peruvian or Chinchona bark, formerly large, has practically disappeared; the prevailing varieties were the "royal" or yellow bark, near Carabaya (Puno), and the grey bark, in Huánuco. The trees have been exterminated in some districts by reckless methods of gathering. The production of sarsaparilla has similarly dwindled; nor is much use yet made of the numerous dyewoods, tanning barks, and timber trees of the *montaña*.

On the other hand, the export of "vegetable ivory"

has sprung up very rapidly of recent years, as will be seen from the following table—

				Kilos.
1907	..	..	..	374
1908	..	..	..	3,774
1910	..	..	..	79,300
1911	..	..	..	449,585
1912	..	..	..	1,185,674

The material is used in Europe for manufacturing buttons, toys, and inlaid work. The palm, which bears three nuts, is not cultivated, but grows wild ; the nuts are gathered by Indians and transported to Iquitos, and thence to Europe. The tree is the *Phytelephas macrocarpa*, and the nuts are known as "tagua," "Corozo," or "Marfil vegetal." In the forest they are used for curing rubber.

India-rubber. In the Amazon region, as in the tropics generally, there are hundreds of different trees, shrubs, and vines that produce rubber ; but of these only a few produce it in a form and on a scale commercially profitable. The Peruvian *montaña* furnishes two kinds of rubber, viz. : (a) the fine rubber (*jebe*), known commercially as Pará, produced by several species of *Hevea* trees ; and (b) the inferior (*caucho*), produced mainly by the *Castilloa elastica*. In the former, incisions are made round the trunk at regular intervals, and the milk or *latex* is collected in little tin cups. The trees grow in groups of 50 to 100 or 150 in a small area ; such a group is known as an *estrada*, and is worked by one collector or *shiringuero*. The best latex is violet in hue, inferior kinds being red or whitish. The trees, so treated, bear year after year, for twenty years, an average of about

20 lb. The rubber is poured into a long-handled mould and "cured" by being revolved in the smoke of a fire made of "humiro" or tagua nuts, and is exported in balls.

The inferior rubber, or *caucho*, was formerly obtained by completely felling the tree, a wasteful method now forbidden by law. The milk flowed into a hole in the ground, and was coagulated by means of a solution of soap and a native plant, *vetilla*. It was exported in the form of planks, known as *Peruvian slab*. About 100 lb. would be yielded by each tree felled.

Sometimes, in both species of trees, long channels are cut in the bark, and the exuding juice is allowed to coagulate naturally. The resulting ribbons of rubber are rolled in balls, known as *Sernamby de jebe* and *Sernamby de Caucho* respectively.

The tables shown on next page, from the Consular Report for 1912, illustrate the volume of the Peruvian rubber trade and the classes of rubber produced.

Rubber is collected in Peru from the trees growing naturally in the forests; there has been as yet no plantation. The quality is equal to that obtained in any part of the world, and is for some purposes indispensable; and the quantity appears inexhaustible. Though the distances are great, the natural system of waterways furnishes a cheap and easy means of transport. The condition of the trade, however, is far from healthy, and a Commission was recently appointed by the President to propose measures of amelioration. There are frequent and extreme variations in prices; heavy export duties are imposed (8 per cent. *ad valorem* generally; but 4 per cent. for rubber from the Javary, which might also be

EXPORTS OF RUBBER FROM IQUITOS, 1907-12

				Kilos.
1907	..	..	..	2,896,407
1908	..	..	..	2,385,152
1909	..	..	..	2,522,066
1910	..	..	..	2,294,191
1911	..	..	..	2,081,887
1912	..	..	..	2,813,964

CLASSIFICATION AND DESTINATION OF RUBBER EXPORTED FROM IQUITOS IN 1912

	Havre.	Liverpool.	Hamburg.	New York.
	Kilos.	Kilos.	Kilos.	Kilos.
Fine Rubber				
(jebe)	318,206	434,923	75,908	42,898
Entrefine	26,494	39,977	1,681	1,692
Weak fine	144,081	318,734	146,235	38,228
Sernamby de jebe	150,634	169,834	27,257	14,407
Caucho	35,578	14,278	256	4,631
Sernamby de				
Caucho	359,374	334,740	74,496	37,422
Total	1,034,367	1,312,486	327,833	139,278

sent to Manáos instead of to Iquitos); these duties are levied in gold *in advance*, and are based on Liverpool prices, the result being that the business is extremely speculative. Again, it is run entirely on a credit basis; the collectors receive advances in kind from the *patron* or company; the *patron* obtains supplies on credit from commercial firms at Iquitos, and these, in turn, from European houses. Among suggested reforms are (1) reduction of export duties; (2) greater care in preparing the rubber for export, thus reducing cost of packing and freight; (3) introduction of planting; (4) offering inducements to the labourers to work the whole year round, instead of five or six months only.

The recent revelations concerning rubber-gathering on the Putumayo have shown that in Peru, as in Brazil and on the Congo, the business has been attended by frightful maltreatment of the natives; this fact alone is a strong argument for the substitution, in place of the present forest collection, of plantations where Government supervision would be more feasible than it is now.

GUANO.—Guano, the *excreta* of fish-eating sea-fowl, is an exceedingly valuable general fertiliser, largely nitrogenous and phosphatic in composition, but containing numerous salts and other constituents. The immense numbers of the sea birds on the west coast of America, has resulted in vast deposits of guano being formed on the coasts and on the desert islands just off the coast. The peculiar value of the Peruvian deposits is derived from the rainlessness of the climate, in consequence of which the nitrogenous elements remain undissolved to the extent of 13–14 per cent.

Guano, long used by the Incas and Spaniards in agriculture (under the Inca *régime*, it was State property), was introduced to the notice of Europe by Humboldt in 1804. For many years the great deposits of the Chincha Islands formed a source of easy wealth for Peru. It has been calculated that from 1841 to 1879 over 12,000,000 tons were exported, with a net profit to the State of nearly £80,000,000. President Billingham, in his message to Congress of 1913, stated that a prolonged study of the administration of these revenues results in the conclusion that the only justifiable investments made were the following :—

Twenty Warships	£ 1,000,000
The Penitentiary	176,000
Exhibition Garden and Palace ..	600,000
Balta Bridge	60,000

or a total of £1,836,000. In other words, £78,000,000 were lost through prodigal and corrupt administration ; and, in spite of this great annual revenue, recourse was had to foreign loans at high interest to build the railways of the country.

Much of the guano ground was lost by the war with Chile ; and in 1890 cession was made to the foreign bondholders of guano in Peruvian territory, up to 3,000,000 English tons, a quantity afterwards reduced to 2,000,000, together with the surplus of 50 per cent. of the guano of the Lobos Islands after the liquidation of the account between Peru and Chile. The exports of guano by the Peruvian Corporation have been as follows—

					Tons.
1891-1895	..	..	..	..	166,877
1896-1900	..	..	..	..	122,739
1901-1905	..	..	..	..	350,169
1906-1910	..	..	..	..	382,151
1911-1913 (April)	..	..	..	..	112,982
					1,134,918

The proceeds of the above were—

					£
1892-1896	..	..	..	..	376,133
1897-1901	..	..	..	..	322,886
1902-1906	..	..	..	..	808,477
1907-1911	..	..	..	..	712,457
1912	..	..	..	..	141,143
					2,361,096

For home use, Peru has obtained, from 1896 to 1912, some 373,860 tons of guano.

As the export in 1883 reached a total of £807,600, it will be seen that the output has greatly diminished. This is due partly to the exhaustion of the southern deposits and the disturbance of the breeding grounds. The export is now mainly from the more northerly islands, such as Guanapi, Macabi, Malabrigo, and the Lobos groups. Protection, where necessary, is now afforded to the birds.

LAND TENURE AND COLONISATION.—The Constitution enacts that any foreigner may acquire territorial property in the republic according to law, under precisely the same obligations and conditions as the native Peruvian citizen. Laws of Congress passed in 1898, 1909, and 1910 have specifically contemplated and provided for the establishment of colonies for the development of the country. The Executive is authorised to use certain State lands for this purpose, selling or letting them to individuals or corporations for purposes of agriculture, manufacture, or mining, or for the encouragement of works of public utility, such as irrigation and the building of roads and railways. The grants made under these laws have been made hitherto not so much for the furtherance of agriculture and colonisation, as for these latter objects.

In earlier times, a British colony was planted at *Chanchamayo*, and a German one at *Pozuzo*; but these efforts were hampered by difficulties of communication, and were hardly successful. Profits were swallowed up by the cost of transport. Of late years, vigorous efforts

have been made to develop the southern *montaña*. (See *Madre de Dios* in the *List of Departments*.)

The cultivable coast lands are mainly held by large companies or wealthy proprietors; in other cases, they are owned by communities, whose title reaches back to the pre-Inca period of the Chimus. Undeveloped State lands in this region may be sold or granted on terms based on the ensuing benefit to the country; irrigation is especially encouraged. There is no opening here for the intending colonist, unless he is possessed of both ample means and experience.

In the case of sugar and cotton growing, partnerships are often arranged between the smaller cultivator and the capitalist factory owner, on conditions such as the following: The capitalist provides land and water-supply, taking, in return, one-quarter of the crop; or he provides, in addition, seed, tools, oxen, etc., receiving one-half.¹ If a money rent is paid, it averages in such cases 8s. 6d. to 14s. per acre annually, according to the amount supplied by the owner.

In the sierra region the desirable land in the valleys has been long occupied. In the rocky highlands of the Andes the *Cholo* Indians retain the small freehold holdings (known as *chacaras*), which they have cultivated for generations; often they have been created by banking up terrace-gardens in almost inaccessible positions and carrying the soil there. These possessions—too poor, perhaps, to excite the avarice of the Spaniard—are now secured by law to the peasantry. In this region there

¹ This is, approximately, the system adopted for the growth of coffee and cocoa in the Perene colony of the Peruvian Corporation.

is even less opening for the intending colonist, who must look rather to the higher and more accessible valleys of the *montaña*.

Concessions of *montaña* land are made (1) as free grants; (2) as freehold property, at about 10s. per hectare (*i.e.*, $2\frac{1}{2}$ acres); (3) as tenancies held from the State at a rental of 2s. per hectare. Grants are perpetual, subject to an annual tax of $2\frac{1}{2}$ d. per hectare. Fertile land in very beautiful sub-tropical country may be acquired at a low cost; living, too, is cheap. On the other hand, the population is very scanty, and means of communication few and costly. The European colonist, of course, would only settle in the higher part of the *montaña*, where the elevation above sea-level mitigates the climatic conditions.

GRAZING AND CATTLE-BREEDING.—The grazing and live-stock industry of the sierra region is important and flourishing. It is carried on throughout the whole length of the country from Tumbes to Puno, at suitable elevations, up to 13,000 ft. or more. Pasturage for sheep, and in the winter for cattle also, begins in the foothills (*lomas*) of the coast region; but the large ranches are to be found only in the sierra uplands, where abundant natural pasturage is to be found. Some of these ranches have 20,000 head of cattle and 50,000 sheep. Generally speaking, the cattle are bony, but not large, the cows yielding milk of rich quality, but small in quantity. The sheep are smallish, with long legs, and are shorn once in two or three years. The industry is sufficiently large, not only to supply the needs of the whole country in meat and wool, but also to export a

considerable quantity abroad. These exports amounted, in 1911, to over £633,000 ; the largest item was wool (£481,845), including that of the alpaca, the sheep, and the llama, in descending order. Other items were hides, goat-skins, cattle, horns, live animals, parchment, tallow, lard, and horsehair. Swine are largely bred and, with lard, exported from Chancay, in the department of Lima. The *Cholo* Indians of the sierras are excellent shepherds, and from a tradition of many generations are very expert in the breeding and management of the llama and alpaca. (These animals and the other members of the family are described under *Fauna*.) Other domestic animals have been imported and acclimatised from Europe ; more cross-breeding with foreign animals is needed to improve their strains.

CHAPTER XII

MINING AND MINERALS—MINING LAWS

MINING AND MINERALS.—The mineral resources of Peru are of extraordinary extent and variety, and her production of gold and silver has long been famous. Judged from the point of view of exports, the most important of these products are : Copper, silver, vanadium, petroleum, lead, borax, gold, coal, and salt. Others, less important commercially, but known to exist in considerable quantity, are antimony, sulphur, bismuth, quicksilver, nickel, zinc, iron, cobalt, wolfram, molybdenite, graphite, magnesia, manganese, mica ; also marbles, alabaster, porphyry, jasper, gypsum, kaolin clay, and ochres. Tin is not known in Peru, but is found in abundance near the Peruvian border in Bolivia, to the east of L. Titicaca.

Gold was worked and possessed in very large quantities by the Incas. It was the discovery of this wealth that led to the Spanish conquest of the country and the overthrow of the indigenous civilisation of Peru. The Incas probably obtained their gold mainly from alluvial deposits ; they mined silver, lead, and copper, and smelted these ores in primitive furnaces.

During the Colonial period the Spaniards pressed with great avidity the winning of the precious metals—gold, silver, and quicksilver. By the law of Mita, the Indians within 30 miles of a mine were drawn by lot for forced service underground for a period of six months, and it is believed that about 80 per cent. perished within the period.



Pack Llamas, for transporting minerals

About 1,400 mines were in operation, among them the famous quicksilver mine of Huancavelica. This period closed with the Wars of Liberation, which were followed by recurrent revolutions.

The abolition of slavery in 1855 stopped the supply of forced labour ; and the Government turned, for a source of easy profit, from mining to the exploitation of the great supplies of guano and nitrate found on or near the coast.

In 1876 a new mining code was issued, and a National School of Mines was founded at Lima, which has among its objects the systematic survey of the mineral wealth of the country. The development of mining which appeared to be starting was checked by the war with Chile, and has only within recent years revived. The chief points in this later movement are the extension of railways, the foundation of American works on a large scale in Cerro de Pasco, and the issue of a new Mining Code in 1901. The bulk of the minerals lie in the Andine region, occupying an area of some 1,500 miles long and 200 to 300 miles broad. The great elevation and inaccessibility of this region, and the difficulties of transport, have been great obstacles to the progress of mining. The two chief railways of Peru now penetrate into the inter-Andine district, and the linking up of the railway system will in the future enhance enormously the possibilities of the industry.

Copper occurs throughout the region from Cajamarca to Cuzco. It is chiefly exploited by the American Cerro de Pasco Mining Co. The ores are, for the most part, grey copper and iron pyrites, with a considerable

admixture of gold and silver. Large smelting works are in operation at the Cerro and at Casapalca, and smaller establishments at Yauli, Huallanca, and Huinac. The output has risen from 1,000 tons in 1897 to 27,734 tons metric (£1,411,416) in 1911. A detailed report of the mines in the Cerro district is quoted below.

Silver is abundant, especially on the eastern slopes of the Andes. The chief districts are Salpo, Hualgayoc, Huari, Huallanca, Huaylas, Huarás, Recuay, Cajatambo, Yauli, Cerro de Pasco, Morococha, Huarochiri, Huan-cavelica, Quispisisa, Castrovirreina, Lucanas, Lampa, Caylloma, and Puno. The ores are red oxides, sulphides, and galena or silver-lead. A good deal is treated by lixiviation and amalgamation with quicksilver in small local works, but much is exported for smelting and refining. One of the largest lodes is that of Carahuacra, over 3 miles long, and occasionally 100 ft. thick. The output in 1911 was 289,383 kg. (£926,713).

Vanadium, a recent product, is now obtained in large quantities at Cerro de Pasco and exported to America. Output in 1911 was 2,251 m. tons (£215,000).

Petroleum is found (1) in Tumbes ; (2) at Talara and Zorritos, in Piura ; and (3) near L. Titicaca, in Puno. The output, steadily increasing, in 1911 was 195,276 m. tons (£785,071).

Lead is found in all the silver-bearing districts, chiefly as galena, accompanied by silver and sometimes by gold. As the cost of transport to the coast is at present prohibitive, it is treated almost entirely for the extraction of silver. Output in 1911 was 2,209 m. tons (£12,541).

Borax, together with *mica* and *sulphur*, is found in the

districts of Sechura (Piura), Camaná, and Arequipa (Arequipa). Output in 1911 was 1,923 m. tons (£24,867).

Gold is obtained in two forms, either from alluvial deposits, or in the form of ores, usually mixed with copper, silver, iron, etc. The principal alluvial districts—situated on the Amazon watershed—are in the Sandia and Carabaya provinces of Puno; in Paucartambo and Quispicanchi (Cuzco); Aymaraes and Antabamba (Apu-*rimac*); Huánuco; Pataz and Chuquibamba on the Upper Marañon; and near the rapids of Manseriche. The metal is found in river-beds, in plains of auriferous soil, and in large banks or moraines of gravel, such as occur at Poto and Aporoma in the Sandia province of Puno. Most of these are at present unworked, or only casually worked by the Indians; but at Poto a few hydraulic “monitors” are installed.

Gold ores, usually in ferruginous quartz, are found (1) on the west side of the Andes, at Salpo, Otusco, Huailas, Yungay, Cañete, Ica, Nasca, Andaray, Arequipa, and elsewhere; and (2) on the plateaux and eastern Andean slopes from Pataz to Puno. The old workings, found throughout the region, were never deep, and the methods of exploitation were primitive; the ores are crushed by hand labour in stone mills or basins called *kimbaletes*, and treated with quicksilver. It is probable that deep workings with powerful crushing machinery would, in proved districts, result in profitable working.

British companies hold concessions at Andaray, Chuquitambo, Aporoma, and Inambari. Peruvian companies at Andaray, Cotabambas, and Pataz; and an American

company at Santo Domingo. Output in 1911 was 741 kg. (£101,152).

Coal, both bituminous and anthracite, is found (*a*) in the Andes ; and (*b*) on the coast near Piura, Salaverry, Chimbote, Huarmey, and Pisco. Immense quantities exist ; and while the coalfields on the coast appears to offer a good chance of commercial exploitation, those inland will prove of service for railway, mining, and manufacturing purposes. The output, at present insignificant, is 324,000 m. tons (£194,155).

Salt is found in various forms in Tumbes, Lima, Huancavelica, Cuzco, Ica, Puno, Arequipa, and Moquegua. It is mainly worked at present at the *salinas* or salt-works of Huacho, in the department of Lima. Output in 1911 was 24,867 m. tons (£24,867).

Quicksilver usually occurs in cinnabar ores as sulphide of mercury, but native mercury is sometimes found. It was produced at Huancavelica in huge quantities, from 1566 till the year when the mine fell in (1786). The ore occurs in an immense lode, about 200 ft. wide, and is still workable. Other districts in Ancachs (*e.g.*, Chonta) and in Puno also yield quicksilver. The output now has almost ceased ; in 1911 it was 560 kg. (£123).

The output of fine *bismuth*, in 1911, amounted to a value of £7,329, and that of *tungsten* to £4,326. Antimony is produced, but only in small quantities.

Iron ores exist in Piura, the Huailas valley, and elsewhere, but they are not as yet worked. Nitrate has been found at Caraveli.

CERRO DE PASCO.—Mining generally, in Peru, is in a stationary condition, but there has been a notable

increase in the production of copper and vanadium. The most active district is that of Cerro de Pasco, where certain mines, previously offered to an English syndicate, were acquired for \$14,000,000 by an American company. This took place during the presidency of Señor Romaña (1899–1903). There was at this period considerable friction between the Government and the Peruvian Corporation, the former holding that the development of the country was being selfishly retarded by the Corporation. American capital was, therefore, welcomed as a counterpoise to the somewhat exclusive policy of the Corporation. The following extract from the British Consular Report for 1911–12 shows the existing position of the mines in the Cerro district—

SILVER AND COPPER MINES.—The Cerro de Pasco Mining Company, who are now the principal owners here, are still working on a small scale at the central shaft, having plenty of ore on hand. They are at present only working two blast furnaces and two reverberatories. The output for the present year amounts to about 40,000,000 lbs. of copper, and a small amount of silver and gold. They expect to enlarge their output during the coming year.

From their coal mines situated at Goyllarisquisga they are producing about 650 tons daily, a decrease on their output of last year on account of the scarcity of labour. But they also buy foreign coke and petroleum, the output from their own coal mines not being sufficient to keep them going. They have now started building a branch line of about 18 kiloms., to some of their mines at Quishuarcaucha, which they expect to finish before the end of the coming year, and will help them very much in obtaining supplies of coal for making coke.

Huarancaca. At this establishment they are producing a little over 200 tons per day. The bars contain about 25 per cent. of copper and 600 ozs. of silver to the ton, with traces of gold.

Vanadium Mines, the property of the American Vanadium

Company, are still working, though there was a report of their stoppage. They are producing about 12,000 sacks of 110 lbs. per month, averaging from 35 to 40 per cent. of this metal.

Vinchos. This company's output is now about 150 tons per month, containing about 600 to 700 ozs. of silver per ton and 25 to 30 per cent. lead, and expect to produce more in the coming year.

Chuquitambo Gold Mines. These are producing about the same as last year—from 9 to 10 kilos. per month. This company started a cyaniding process to work their tailings, but this process up to the present has not turned out a success.

Atacocha. Hardly any work has been done here during the present year, the mines having almost stopped working.

Huailay. These mines have only been worked about six months during the present year; production about 800 sacks of 110 lbs. per month, containing about 28 per cent. copper, and 50 ozs. of silver, and $\frac{1}{4}$ oz. of gold per ton; the output has been exported. These mines have been bought by a French company, who at present are only doing exploration work.

Electric Light and Power Works. The Cerro de Pasco Mining Company and the Morococha Company have taken possession of the rivers and waters between Oroya and Morococha, for the purpose of erecting a powerful factory to serve both the companies for lighting and power. They have started erecting the plant and expect to finish in a year or a year and a half.

Morococha. This company's mines have begun work, the metal being sent to the smelter up here, about 150 tons per day, and they will soon double this quantity. The ores contain about 9 or 10 per cent. copper and silver.

CLAIMS.—The size of a mining claim (*pertenencia*) varies from 200 by 100 metres (= 2 hectares = 5 acres) for lodes, to 200 by 200 metres (4 hectares or 10 acres) for deposits. One owner may hold any number of claims. Each claim is subject to a tax of 30 soles annually (= £3), and lapses to the Government if the tax is unpaid.

LABOUR.—Manual labour is performed by the sierra Indians, and wages at present are low; work is often

done by the piece. It should be borne in mind that the Indian prefers agricultural work to labour in the mine or factory, and any large development of mining might be faced by the difficulty of a scarcity of labour suited to work at the high altitudes common in Peru.

OUTPUT.—The total output for 1910 was estimated at a value of £3,373,212 (of which gold was valued at £96,612); and for 1911, at £3,699,615 (gold, £101,152). Details of the minerals exported are given in the Chapter on *Imports and Exports*.

MINING LAWS.—The present Mining Code, passed in July, 1900, has been in force since January 1st, 1901. It revokes all previous legislation on the subject, save the laws on the School of Engineers, on Guano, on Nitrate, on Mining Taxes, on the Salt Monopoly, and on the Fiscal Duties. It is an exhaustive document, of 220 articles, arranged in eighteen chapters; these deal with mining property generally; prospecting; the unit of measure, extension, and form of concessions; taxes; mining administration and jurisdiction; persons capable of acquiring mining property; the method of lodging mining claims; the relations between the concessionary and the owner of the soil; the relations between mine-owners; arrangements for general audits for adjoining mines; land and water for reduction works; rights of way; mining companies; mortgages and other contracts; technical functionaries; mining lawsuits; expropriation and indemnification; and arrangements to govern the transition from the previous to the present code. The following points are extracted—

The ownership of mines is distinct from that of the

land or superficial property. Concessions are for mineral substances capable of industrial use, but do not include (a) guano, which remains State property ; (b) salt ; (c) nitrate, borax, and alkaline salts, which are regulated by special laws ; (d) rocks, building and ornamental stones, gypsum, ochres, clays, peat, steatite, calcareous phosphates, pyrites, aluminium, and magnesia, all of which belong to the owner of the soil.

Prospecting is free in unfenced lands, but requires the consent of the owner in fenced property, or a licence from the local mining authority.

An annual tax of 30 soles (£3) must be paid on each claim, half on 30th June and half on 31st December ; provisional concessions for prospecting are charged 1 sole (2s.) per hectare. Failure to pay the tax (which is surcharged in succeeding periods) renders the holding liable to confiscation.

The central administrative body is a Superior Mining Council, of seven members, presided over by the Minister of Development (*Fomento*). The local administration is (a) by territorial deputations (of two members) in important mining districts ; or (b) by one delegate ; or, in the absence of either of the above, (c) by the judge or acting-judge of the lower court of the province. Substitutes are appointed, who are to act in the absence of either deputy or delegate.

Art. 18th. The claim or unit of measure for mining concessions, except in beds mentioned in the following art., is a prismoidal solid of rectangular base with an extension of two hectares, having one side of two hundred meters and the other of one hundred, measured horizontally in any direction which the petitioner may point out and of indefinite depth in the vertical direction.

Art. 19th. In placers, coal and petroleum deposits, and analogous ones of gold, platinum, tin, etc., claims shall have a square base with sides two hundred meters long.

Art. 20th. The mining concession applied for by the denouncer, may embrace any number of claims up to sixty.

Art. 21st. Claims forming together a single concession must be grouped without interruption and form a rectangle whose sides must be in a proportion not exceeding ten to one.

Art. 42nd. The following are the attributions of the Mining Deputations—

1st. To decree and decide on everything respecting concessions, possession and measurements of mines within the territory of their jurisdiction, to attend to the formation and registration of the titles of the mining concession : to superintend mining labours as far as it should be necessary so as to foresee, prevent and remedy accidents and to protect the life and security of the workmen.

2nd. To resolve in a lower court with the character of privative judges, litigations which may be promoted with respect to denouncements, concessions, measurements and possessions, introduction in strange claims, expropriations, attendances, boundaries, and all other matters that have reference to mines.

3rd. To decide questions relating to wages between employers and workmen, in which cases a Justice of the Peace may intervene, whenever the distance to the seat of the Deputations exceeds twenty kilometres and the amount of the business is not greater than two hundred soles.

Art. 43rd. Attributions of the Deputations are also the superior police of mines and all mining establishments within their respective territories so as to be able to attend to the security of persons.

Art. 44th. Deputations have the duty of transmitting to the Government all data respecting mining industry in the territory of their jurisdiction, when so requested.

Art. 45th. One Deputy's attendance suffices for the discharge of the functions entrusted to the Deputation ; but both will intervene if at the time of deciding on some matter any of the concerned parties so require it.

Generally speaking, any Peruvian or foreigner capable of owning property may acquire mining claims, except Government officials in the sphere of their offices, and the wives and sons (under age) of such officials.

A fee of 5 soles (10s.) is required on applying for a claim.

Registered applications are advertised by placard at the office door and in the newspapers ; and, if unopposed, possession may be claimed after three months. If opposed, the matter is decided by the deputation, experts being called in, if necessary. Records of all claims, possessions, and proceedings are to be filed. Titles are finally authorised by the Mining Department of Lima, and when once registered in the tax-list of mines can only be disputed before common law.

Appeal against a judgment of the local deputation must be made within five days. The Court of Appeal is constituted of two members of the Superior Court and one acting mining judge.

Opportunities for litigation seem numerous ; and it must be added that competent observers report that the administration of law in Peru leaves much to be desired. Success in litigation is chiefly a matter of the purse ; and the higher the court, the longer the purse required.

CHAPTER XIII

MANUFACTURES AND MINOR INDUSTRIES

APART from her great agricultural and mining industries, Peru possesses a large number of manufactures, some of which are on a very considerable scale. Under the Inca *régime*, despite somewhat primitive methods, a high proficiency was attained in weaving, pottery, smelting, and gold and silversmiths' work. These traditional arts still survive ; to this day, the Indians of the sierra manufacture their clothes, hats, and blankets or *ponchos*, as their forefathers did before the coming of the Spaniards. But during the last thirty years, there has been a development of manufactures on a larger scale, worked by machinery of European origin. The capital and ownership, though sometimes domestic, is for the most part foreign, and the management also of these establishments is mainly in the hands of foreigners. The most important of the industries are sugar-making, textiles, brewing and distilling, wine-making, smelting, and engineering ; but there are numerous minor industries. Most of the large factories (except in the case of sugar) are in or near Lima, Callao, Arequipa, and Cuzco.

SUGAR.—Upwards of fifty plantations or *haciendas* in the sugar district of the west coast have their own mills. The annual produce is about 150,000 tons, of which the home market consumes about 30,000 tons. One of the leading factories is that of the British Sugar Co. at Santa Barbara, in the Cañete valley, which produces some

16,000 tons per annum. Until recently, the machinery in these mills was old-fashioned and inadequate, extracting little more than 75 per cent. sucrose in place of 90 per cent. This reproach is being done away with now. An important new installation of the latest machinery, with the best labour-saving devices, has just been erected in the Roma factory, and great improvements have been introduced at Laredo, Tuman, Cartavio, and Casa Grande. The future output will, therefore, be considerably larger.

TEXTILES.—(a) *Cotton*. Lima has five factories; Arequipa and Ica, one each. There are upwards of 1,500 looms, producing about 24,000,000 yds., and occupying 1,500 hands. Calico, drill, towelling, and “Cashmeres” are made, supplying a large part of the requirements of the home market; but calico printing is not attempted.

(b) *Woollen*. There are five factories, at Cuzco, Lima, and Arequipa. That at Santa Catalina, Lima, produces 200,000 yds. of cloth annually, used mainly for army clothing. The most modern equipment is at Marangani, near Cuzco.

Probably the output could be trebled.

BEER, WINE, AND SPIRITS.—The brewing of *beer* is rapidly increasing. The largest brewery is that of Backus & Johnston (British capital), at Lima; there are others in Callao, Arequipa, and Cuzco.

Alcohol is distilled in great quantities in the wine-growing district, and near Lima and Callao; some 770,000 galls. of pisco (a spirit made from white grapes) are produced annually. All the sugar of the *montaña* is at present used in the manufacture of *aguardiente* (rum).

Wines, both cheap and good, are made to the extent of about 2,200,000 galls. per annum.

ORE SMELTING is largely in American hands, *e.g.*, at Cerro de Pasco and Morococha. It admits of further development.

ENGINEERING.—Large *railway engineering shops* are at work in Callao, Arequipa, and Pacasmayo; Iquitos also possesses an engineering establishment. These are valuable not only for their equipment, but for the mechanical training they impart.

Hydro-electric Installations of considerable size, on the Rimac, 16 and 25 miles from Lima, provide electric power for the capital. Other large towns (*e.g.*, Trujillo, Arequipa) possess similar establishments; and a large installation is being erected for the Cerro de Pasco and Morococha mining companies. The great water power supplied by the rivers of Peru invites further operations in this field.

MISCELLANEOUS.—*Cocaine* is manufactured in sufficient quantities to satisfy the world's demand. About thirty factories exist in the coca-producing districts, the largest being at Otusco and Lima.

Coca leaves, chewed with alkali, have from time immemorial been used by the Indians as a stimulant to exertion in the absence or scarcity of food.

Central *rice* mills, with fairly modern machinery, exist in the rice districts. Climatic conditions and inadequate irrigation hamper the growth of this commodity, and the supply is not sufficient for the demands of the home market.

Cotton-seed oil and *cotton-seed cake* are made in eight or

ten factories in Lima, Chancay, and Cerro Azul. Both the cake and the seed are exported in considerable quantities (vide *Exports*).

The manufacture of *tobacco*, *cigars*, and *cigarettes* has been a Government monopoly since 1909. There are five factories in Lima and others in Callao, Piura, Trujillo, and Arequipa. Peruvian tobacco is somewhat coarse and strong-flavoured ; the annual output is about 2,200,000 lb.

There are two *match* factories in Lima (one American) and one at Iquitos.

Several factories produce *soap*, *tallow*, and *candles*.

Flour and other wheat products, such as vermicelli and macaroni, are made in several places ; the best and most modern equipment is at the Santa Rosa mills, near Lima. Macaroni is made at Iquitos.

There is one *biscuit* factory at Lima.

Lard is produced in large quantities, though not sufficient for home needs ; the industry is an old and flourishing one.

Tanning is also a long-established industry, but the processes are old-fashioned, and the products not of a high class.

Paper, both white and brown, is made at one factory in Lima ; but the quality is inferior, and there seems to be an opening for capital here.

Chocolate is made in several factories at Lima and Cuzco ; the quantity is not sufficient, however, for the home market, and has to be reinforced by importation from Guayaquil.

Chemical industries include the manufacture of drugs

(especially cocaine), benzine from kerosene, ammonia from coal-gas, gasoline, and alcohol; the last two are exported in some quantity.

Boots are usually hand-made, but there is one machine factory at Lima.

Other minor industries are charcoal, butter, furniture, parchment, dried fruits and foods, brooms.

So-called "Panama" hats, woven from the *toquilla* grass, are made in large quantities in, and exported from, Catacaos and other places in the Department of Piura. The local name for these hats is "jipi-japa"; the fibre is kept under water during the whole of the plaiting process, and not exposed to the sun till the article is finished.

FUTURE POSSIBILITIES.—Peru is a vast storehouse of the raw materials of manufacture; it possesses abundant water supply suitable for the development of electric power, extensive coalfields, and cheap labour.

For a long time to come, Peru must continue to import machinery, tools, metal manufactures, vehicles, shipping and ships' stores, and articles of luxury; it may be mentioned that the introduction of machinery is encouraged by its being admitted free of Custom duty. Both cotton and woollen textiles admit of far larger production, the raw material for both being to hand in abundance. The silkworm has been introduced in Apurimac, and silk manufacture is a possibility of the future. At present, there is a large importation of food-stuffs and beverages, but excellent beer and wine are produced locally; butter, cheese, chocolate, and preserve-making could be greatly increased. The various hide-dressing industries admit of improvement and development in methods and output.

Pottery is a craft for which the ancient Peruvian showed a native genius ; there seems no reason why glass and pottery should not be produced in Peru to-day in quantities adequate to meet the demand of the country. The timber resources of the *montaña* are enormous, and will some day be exploited by means of saw-mills, etc. At present, however, it is impracticable owing to difficulties of transport. Another obstacle is the difficulty of securing a large enough supply of one kind of timber in any district to make exploitation profitable. For the present, the treeless west of Peru must supply its timber requirement by importation from North America.

The more general conditions affecting manufacturing enterprise are, on the whole, more favourable to-day than ever before. The political and financial instability that checked the flow of capital to Peru in the nineteenth century has diminished. Political and frontier disputes with Chile, Bolivia, and Brazil have been peaceably settled ; and there is no reason to doubt that similar difficulties with Ecuador and Colombia, which have been a fruitful source of friction in the past, will eventually be equitably adjusted. The currency and finance have been established on a sound basis, and the general administration of the country is progressive and enlightened. The immense natural difficulties of inter-communication are gradually being overcome by railways, roads, and telegraphs. It is arguable that the railways of Peru were built before their time ; still they exist now ; and, though they need linking up and carrying further east into the *montaña*, the natural barriers to trade have, in great part, been broken down.

The character of the workman is another point worth considering. The average *Cholo* Indian prefers agricultural and pastoral employments to mining or factory work ; he is also illiterate and lacking in initiative. The spread of education can only be slow in Peru ; but the native has hereditary qualities of craftsmanship and patience that give him a natural fitness for the work of an artisan.

CHAPTER XIV

IMPORTS AND EXPORTS

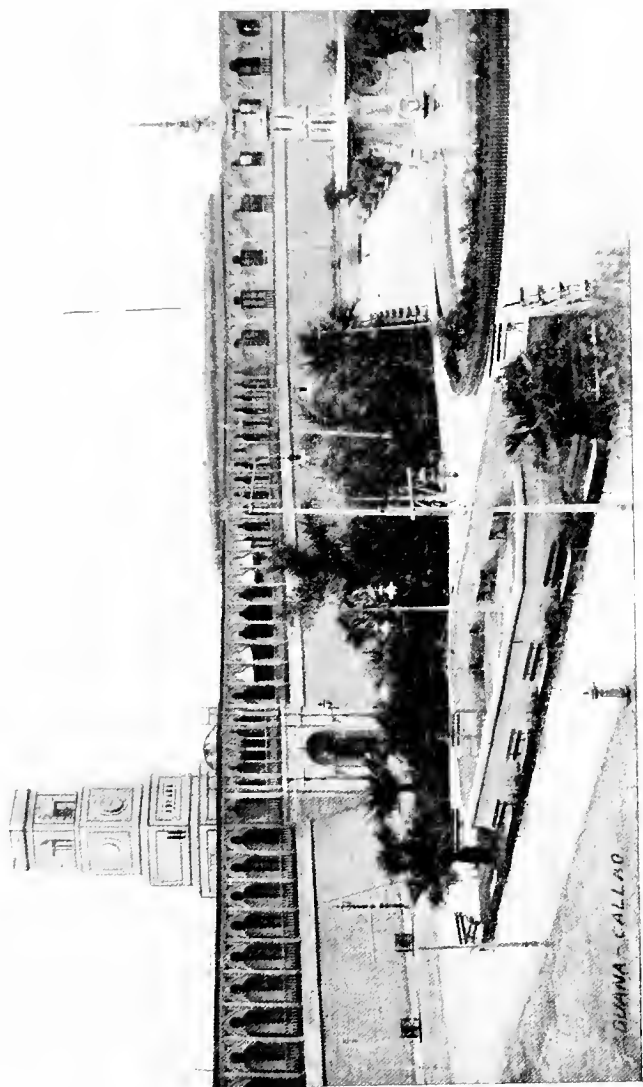
DUTIES.—The *Import Duties* average 33 per cent. on such articles as are liable to them. Certain foods and beverages are dear, *e.g.*, tea, coffee, wines and liquors, cheese, butter and margarine, on which the duties are about 65 per cent. On the other hand, many important articles are on the free list, *e.g.*, agricultural and mining machinery and tools; railway material and stock; steam and electrical motor machinery; naval articles; coal; and educational works.

Export Duties are non-existent, except in the cases of gold and rubber. Three per cent. is charged on gold and 8 per cent. on rubber; but, as explained under *Forest Products*, 4 per cent. only is levied on rubber from the Javary district, to induce its exportation via Iquitos, instead of its being sent direct to Manáos; 40 cents (1s. 8d.) per dozen is levied on “Panama” hats.

TOTAL TRADE.—The following table shows the total import and export trade of Peru from 1905 to 1911 inclusive. (The figures are quoted from British official sources.)—

	Imports.	Exports.
	£	£
1905	4,917,724	4,780,414
1906	5,632,349	6,600,325
1907	5,514,787	5,747,732
1908	5,295,625	5,478,941
1909	4,298,627	6,492,670
1910	4,965,792	7,074,076
1911	5,438,250	7,416,028

To transpose pounds sterling into Peruvian *Soles*, multiply by 10.



Customs House, Callao

It will be seen that the imports show a diminution in 1907-9, with a rapid recovery in 1910 and 1911; the exports suffered a set-back in 1907 and 1908, but since then have increased largely, the figures for 1911 being the largest in the history of the country. To some extent, this increase is due to the improved methods adopted in recent years of collecting the Customs duties.

IMPORTS ANALYSED.—(a) Imports *by articles* in 1910. The following table shows the classes of imports in order of value, with the leading countries from which they come. The year 1910 is taken as the latest for which absolutely complete and verified returns are available—

i.	Dry Goods and Miscellaneous Articles ..	£	1,739,630
	United Kingdom	£	530,860
	United States		370,279
	France		307,310
	Germany		306,288
	Belgium		188,382
ii.	Food and Condiments		734,464
	Australia		164,727
	United States		112,495
	Hong-Kong		104,264
	Chile		102,283
	United Kingdom		76,144
	Germany		70,938
iii.	Cotton Textiles		588,031
	United Kingdom		363,735
	Germany		90,142
	Italy		46,065
	United States		30,659
iv.	Metals and Manufactures thereof ..		449,199
	United Kingdom		261,124
	United States		102,441
	Germany		42,242
	Belgium		33,944
v.	Wool and Hair		213,387
	United Kingdom		109,513
	Germany		57,036

				£	£
vi.	Tools, Ships' Stores, Machines and Vehicles				183,764
	United States	..	..	89,748	
	United Kingdom	..	..	55,304	
	Germany	..	..	15,955	
	France	..	..	11,918	
vii.	Wearing Apparel	..	..	..	167,375
	United Kingdom	..	..	53,212	
	France	..	..	25,577	
	Germany	..	..	24,411	
	Italy	..	..	22,346	
viii.	Stones, earths, glass, and chinaware	..	..	..	122,092
	United Kingdom	..	..	55,913	
	Germany	..	..	29,353	
ix.	Beverages	..	..	..	115,527
	France	..	..	33,025	
	Germany	..	..	18,093	
	United Kingdom	..	..	16,927	
	Portugal	..	..	14,271	
x.	Medicines and Drugs	..	..	..	113,298
	United Kingdom	..	..	29,707	
	Germany	..	..	26,990	
	United States	..	..	24,405	
	France	..	..	15,639	
	Italy	..	..	10,213	
xi.	Textile Fibres (Linen, Hemp, Jute)	..	..	..	93,740
	United Kingdom	..	..	51,257	
	India	..	..	18,282	
xii.	Lumber	..	..	..	89,316
	United States	..	..	66,316	
xiii.	Paints, Dyes, Varnishes, etc.	..	..	..	79,762
	United States	..	..	43,810	
	Germany	..	..	13,892	
	United Kingdom	..	..	12,823	
xiv.	Paper, Stationery, and Cardboard	..	..	..	66,468
	Germany	..	..	31,763	
	United States	..	..	9,623	
	United Kingdom	..	..	7,332	
	Belgium	..	..	5,841	
xv.	Silk	..	..	..	61,744
	Germany	..	..	24,894	
	United Kingdom	..	..	13,076	
	France	..	..	11,943	

		£	£
xvi.	Arms, Ammunition, and Explosives ..	..	38,154
	United Kingdom	13,814	
	United States	8,082	
	Hong-Kong	5,550	
	Chile	4,704	
	Germany	3,562	
xvii.	Hides, Skins, and Leather Goods ..	..	34,781
	United Kingdom	12,117	
	Germany	8,369	
	United States	7,702	
xviii.	Furniture	..	31,924
	Germany	11,009	
	United Kingdom	9,043	
	United States	8,266	

(b) Imports by countries—

	1910.	1911.
	£	£
1. United Kingdom	1,678,701	1,720,133
2. United States	922,677	1,248,952
3. Germany	790,710	945,907
4. France	485,903	289,543
5. Belgium	250,595	333,982
6. Australia	182,152	229,306
7. Italy	167,790	199,450
8. Chile	152,188	76,996
9. Hong-Kong	131,686	154,321
10. Spain	52,308	79,597
11. India	29,828	38,980
12. China	4,159	283
13. Canada	3,400	—
14. Other Countries	113,695	120,800
Total	<u>4,965,792</u>	<u>5,438,250</u>

BRITISH IMPORTS.—The principal imports into Peru from the United Kingdom are : (1) Dry goods and miscellaneous articles ; (2) cotton textiles ; (3) metals and manufactures thereof ; (4) wool and hair ; (5) food and condiments ; (6) coal, glass, china ; (7) wearing apparel ; (8) textile fibres (linen, jute, hemp).

The imports from the United States, the second largest importing country, are very miscellaneous, and fluctuate considerably from year to year. The most important are : (1) Machinery and vehicles ; (2) lumber ; (3) blacking and boot pastes ; (4) hardware ; (5) cotton goods ; (6) pharmaceutical products ; (7) lard ; (8) oils and lubricants ; (9) explosives and firearms ; (10) paper and paper articles ; (11) perfumery ; (12) boots and shoes ; (13) ropes and cordage ; (14) breakfast foods ; and (15) soap.

EXPORTS ANALYSED.—The list of Peruvian exports is eloquent of the resources of the country and of the extent to which they have been developed. The year taken is, as with the imports, 1910—

		£			£
(a) Minerals	1,922,460		Chuña ¹	7,435	
Sugar	1,382,157		Gasoline	7,408	
Rubber	1,278,673		Raw Sugar		
Cotton	1,014,822		(Chancaca)	7,261	
Alpaca Wool	265,757		Condurango Bark	6,788	
Guano	181,582		Horns of Cattle	5,833	
Sheep's Wool	145,386		Chalona ²	4,829	
Straw Hats	121,078		Parchment	4,777	
Petroleum	109,615		Bran	4,746	
Hides	90,745		Vegetables and		
Llama Wool	70,702		garden produce	4,391	
Cocaine	69,151		Rhatany Root	4,171	
Rice	46,234		Live Animals	3,869	
Goat-skins	33,754		Onions	3,772	
Cotton-seed Cake	27,157		Tallow	3,232	
Shirtings	26,064		Cacao	3,200	
Pepper	25,164		Cotton-seed Oil	2,739	
Coffee	23,228		Yarn	2,215	
Cotton Seed	21,660		Butter	2,003	
Cocoa	20,337		Olives	1,976	
Alfalfa Seed	18,851		Wheat Flour	1,841	

¹ *i.e.*, dried potatoes, cured on ice, used in making vegetable soup.

² *i.e.*, mutton cured on ice, without salt.

Salt	£ 12,956	Honey	£ 1,551
Charcoal	10,682	Wines	1,306
Fruits (fresh and dried)	9,548	Beeswax	1,288
Ivory Nuts	9,325	Indian Corn	1,224
Cattle	8,548	Horsehair	1,094
Alcohol	7,493	Barley	1,044
		Miscellaneous	30,961

(Cotton textiles, which amounted in 1909 to £36,850, do not appear in 1910, except as "shirtings.")

(b) *Mineral Exports* of 1910 analysed—

Silver and copper bars	£ 635,852	Copper lead, and silver matte	£ 5,591
Copper and silver bars	600,841	.. old	4,732
.. .. matte	130,915	Lead ore	3,976
.. .. ore ..	123,698	Silver and copper sulphide	3,312
Silver sulphide ..	92,083	Gold, silver, and copper ore	3,051
Vanadium	91,911	All others	18,789
Borate of lime ..	73,170		
Silver and lead ore	37,516	Total	1,922,460
Silver bars	32,148		
Copper ore	29,750		
Silver ore	24,777		
Copper matte ..	10,348		

Of this total, the United States took £1,406,663 (mainly silver, copper, and vanadium); the United Kingdom, £388,793 (various); Germany, £102,195 (mainly borate of lime and silver sulphide); Belgium, £18,435 (silver and lead, etc.); and France, £2,702 (copper).

(c) *Exports by countries* in 1910—

United Kingdom ..	£ 2,517,308	Belgium	£ 106,211
United States ..	2,032,577	Spain	70,941
Chile	894,981	Ecuador	14,461
France	771,720	Colombia	12,924
Germany	358,208	Brazil	8,078
Bolivia	199,600	Italy	1,128

In 1911 the place of France was taken by Germany, and that of Brazil by Italy.

CHAPTER XV

GAZETTEER OF CHIEF TOWNS

A

ABANCAY, cap. of the dep. of Apurimac, and also of the prov. of Abancay ; lat. $13^{\circ} 46' S.$; 8,060 ft. above sea-level ; on R. Abancay, a trib. of the Apurimac. Population, *c.* 5,000. Communications : (1) by road with Cuzco (209 kil.), and thence by railway with Mollendo (645 kil.), or (2) by road with Chala ; the former is much the more convenient. Chief industries : sugar-refining, alcohol, silk cloths ; copper is mined in the district.

ACARÍ, on R. Acarí, in dep. of Arequipa, prov. Camaná, 30 m. from mouth of river ; lat. $15^{\circ} 25' S.$ Custom house of 3rd class, dep. on Pisco.

ACOMAYO, in dep. of Cuzco, 50 m. S. of city of Cuzco ; lat. $13^{\circ} 50' S.$; cap. of the prov. of Acomayo.

ANCOMARCA, on the frontier between Peru and Bolivia, S. of L. Titicaca ; lat. $17^{\circ} 15' S.$ Custom house of 3rd class, dep. on Ilo.

ANCÓN, in dep. and prov. of Lima ; small watering-place, much frequented in the summer ; connected by railway with Lima (38.2 kil.) and with Huacho, *via* Huaral (215 kil.) ; lat. $11^{\circ} 37' S.$ Custom house of 3rd class, dep. on Callao.

ANDAHUAILAS, cap. of Andahuailas prov., in dep. of Apurimac ; lat. $13^{\circ} 51' S.$ Industries : agriculture and mining (gold, silver, copper, coal, marble).

ANTA, cap. of Anta prov., in dep. of Cuzco ; lat. $13^{\circ} 45' S.$; about 50 m. W. of Cuzco. Copper, clays, and marble are found, and cereals grown.

ANTABAMBA, cap. of Antabamba prov., of dep. of Apurimac ; lat. $14^{\circ} 35' S.$ Produces cereals, gold and silver.

APLAO, cap. of Castilla prov., in dep. of Arequipa ; lat., 16° 13' S. Products : sugar, vines, cereals, coffee ; gold, silver, sulphur ; wine and alcohol, carpets, woollen textiles.

AREQUIPA, cap. of the dep. of Arequipa, and also of the prov. of the same name ; lat., 16° 24' S. ; 7,550 ft. above sea-level ; pop. 35,000. Communications : by the Southern Railway with Mollendo (172 k.) ; with Juliaca and Puno (351 k.) on L. Titicaca, and so by steamer and rail with La Paz in Bolivia ; and with Cuzco (644·6 k.).

Arequipa, orig. called Villa Hermosa, is the second in importance of the cities of Peru. It stands in a fertile oasis amid arid uplands, surrounded by the great mountains of Omati, Ubinas, Pichu Pichu, and El Mistí (18,500 ft.). The air is dry and pure, and the climate delightful. The city has an oriental aspect ; its massive houses, mostly of one storey, are built of white stone, dazzling in the brilliant sunshine. The larger façades are adorned with elaborate ornament. With university and cathedral, it has been for generations in the forefront of the literary and religious life of the nation. It possesses two meteorological stations, and the Harvard University stellar observatory. The volcanic soil of the surrounding district, watered by the R. Chile, produces cereals, vines, and sugar-cane ; and gold, silver, copper, mica, borax, and sulphur are found. The industries of the city include cotton and woollen textiles, leather, tobacco, and cigarette making, brewing, printing, gold and silversmiths' work. Here, too, are the engineering shops of the Southern Railway. There is an electric tram service.

The bathing resort of Tingo is not far from the city.

Arequipa is the centre of the wool trade.

ASCOPE, in prov. of Trujillo, and dep. of La Libertad ; lat. 7° 40' S. Present terminus of railway communicating *via* Chocope, with Trujillo (68 k.) and the port of Salaverry (82 k.). The district produces sugar.

ASTILLERO, in dep. of Puno ; lat. 13° 30' S. ; small river-port on the Tambopata. Communications : (1) by canoe down river with Puerto Maldonado (*q.v.*) ; and (2) by road and rail with Mollendo (924 k.).

ATICO, small port in dep. of Arequipa ; lat. $16^{\circ} 15' S$. Custom house of 3rd class, dep. on Mollendo.

AYABACA, cap. of prov. of Ayabaca, dep. of Piura ; lat. $4^{\circ} 35' S$. ; near frontier with Ecuador. The district is mainly agricultural ; sugar is grown, alcohol distilled, and gold mined.

AYACUCHO (formerly GUAMANGA), cap. of the dep. of Ayacucho, and also of the prov. of the same name ; lat. $13^{\circ} 6' S$. ; 9,216 ft. above sea-level ; pop. 14,000. Communications by road : (1) with Ica (300 k.), and thence by railway to port of Pisco (374 k.) ; and (2) with Huancayo (c. 260 k.), and thence by railway with Callao (347 k.). The products of the district include silver, and filigree ware ; cereals, wine, pottery, leather, and textiles.

An ancient city, seat of a bishopric and a superior Court ; it contains a cathedral and about twenty other churches. It stands in a deep and fertile valley, the scene of a great battle in 1824.

AYAVIRI, cap. of Ayaviri prov., in dep. of Puno ; lat. $14^{\circ} 50' S$. Communications by Southern Railway with. Cuzco (247 k.) ; Juliaca (93 k.) ; and Mollendo (569 k.). Products include beans, Peruvian bark, mercury, arsenic, silver, copper.

ASÁNGARO, cap. of Asángaro prov., in dep. of Puno ; lat. $14^{\circ} 53' S$. Products include Peruvian bark, silver, antimony, copper, cinnabar, salt, marble, mattings.

B

BARRANCA. *See* Supe.

BARRANCO, bathing resort near Callao.

BAYOVAR, small port at the southern end of the Bay of Sechura, in dep. of Piura ; lat. $5^{\circ} 50' S$. Connected by a private mineral railway with the sulphur mines at Reventazon (48 k.). Chief export, sulphur. Vessels must clear at Paita custom house.

BELLAVISTA, bathing resort near Callao, with which it is connected by branch railway (3.4 k.).

BERMÚDEZ, PUERTO. Limit of steam navigation on the R. Pichis ; on route from Iquitos to Oroya and Cerro de Pasco ; lat. $10^{\circ} 20' S$. Wireless telegraph station.

C

CABALLO COCHA, river-port on the Amazon, below Iquitos, 1,478 kil. from Manáos by river. There is also a lake here of the same name.

CABANÁ, cap. of Pallasca prov., in dep. of Ancachs ; Lat. $8^{\circ} 23' S$. Coal, silver, copper, and placer gold are found, and cereals and potatoes are grown.

CAILLOMA, cap. of Cailloma prov., in dep. of Arequipa ; lat. $15^{\circ} 20' S$. Agricultural and pastoral district ; mining products : gold, silver, copper, coal, lead, petroleum.

CAJABAMBA, cap. of prov. of Cajabamba in dep. of Cajamarca ; lat. $7^{\circ} 30' S$. Products mainly agricultural : sugar, coffee, coca, and cereals. Some silver is mined.

CAJAMARCA (or **CAXAMARCA**), cap. of the dep. of Cajamarca, and also of the prov. of the same name ; lat. $7^{\circ} 5' S$. ; 9,440 ft. above sea-level ; pop. 10,000. Communications by road with Chilete (75 k.), and thence by railway (136 k.) with Pacasmayo. Ancient Inca city ; the thermal " Bath of the Incas " is in the neighbourhood. The mean temperature is 52° Fahr. The district produces gold, silver, copper, coal ; also cereals, tobacco, chocolate.

Historically the town is notable as the scene of the capture of Atahualpa by Pizarro in Nov., 1532. It stands on the northern overland route to Iquitos, *via* Chachapoyas and Yurimaguas. Telephone to Pacasmayo.

CAJATAMBO, cap. of Cajatambo, prov. in dep. of Ancachs ; lat. $10^{\circ} 30' S$. Produces cereals, textiles, cattle-rearing. Coal, silver, copper, antimony, and plumbago occur.

CALCA, cap. of Calca prov., in dep. of Cuzco ; lat. $13^{\circ} 30' S$. Industries : Agriculture (cereals, sugar, cocoa, coca) and mining (silver and copper).

CALLAO, EL, cap. of the " constitutional " prov. or dep.

of Callao, which covers 14 sq. miles ; lat. $12^{\circ} 8' S.$; pop., 34,000. Connected by two steam railways and two electric lines with Lima ($7\frac{1}{2}$ m.), and thence by the Central Railway with Oroya, Huancayo, and Cerro de Pasco.

The roadstead, protected by the lofty island of San Lorenzo, affords safe anchorage in a spacious bay. The docks allow the largest steamers to lie alongside. There is one large and one small floating dock ; also a Clayton disinfecting apparatus. The town itself is purely commercial. There is an English church. Custom house of 1st class. Work in the port ceases at 6 p.m. Guano islands in neighbourhood. Inland telegraph and telephone service, and cable communication to all parts. Regular ocean-steamer services to Panama, Europe, United States, and Hong-Kong ; and coasting vessels of all sizes call. The industries include the manufacture of flour, tobacco and cigarettes, wine, spirits, and beer. The engineering shops of the Central Railway are here. The leading exports are wool, cotton, and cotton-seed, copper, silver, coffee, oil-cakes, sugar, hides, cocaine ; and the imports, timber, machinery, and manufactured metals, cotton and other textiles, flour and grain, drugs, oil, paper, coal. The total trade is upwards of £4,000,000 annually.

There is easy access to the watering-places of Bella Vista, Barranco, Chorrillos, Miraflores, and La Punta.

There are high-powered wireless telegraphic installations at Callao and on the island of San Lorenzo.

CAMANÁ, seaport in dep. of Arequipa ; lat. $16^{\circ} 40' S.$; at mouth of R. Mages ; pop. 1,000. Cap. of prov. of same name. The district produces olives, rice, sugar ; mining products are coal, copper, sulphur, kaolin, salt, petroleum, gold, mica, borax. Chief trade : olives and olive oil.

CAÑETE, cap. of Cañete prov., in dep. of Lima ; lat. $13^{\circ} 7' S.$ Communications by railway with port of Cerro Azul (10 k.). The district produces cereals, cotton, sugar, fruit ; gold, copper, iron ; sugar, oil, wine, and spirits. Hats and matting are manufactured.

CANGALLO, cap. of Cangallo prov., in dep. of Ayacucho ; lat. $13^{\circ} 45' S.$ Produces sugar, alcohol, hats, woollen textiles, and sulphur.

CANTA, cap. of Canta prov., in dep. of Lima ; lat. $11^{\circ} 20' S$. Agriculture and grazing ; wool-bearing animals are largely bred ; the mineral wealth is great, including gold, silver, iron, coal, sulphur, cinnabar, ochres, and kaolin clay.

CARÁS, cap. of Huailas prov., in dep. of Ancachs ; lat. $9^{\circ} 4' S$. Produces coal, quicksilver, silver, gold, cinnabar, copper, antimony ; cereals, sugar, vines, and fruit are grown ; textiles and tanning are the chief industries.

CARMEN, EL, mining district in Lima dep., connected by private railway (4 k.) with Casapalca, on the Central Railway (72 k. from Droya) ; lat. $11^{\circ} 40' S$.

CARQUIN, in dep. of Lima, just N. of Huacho ; lat. $11^{\circ} 7' S$. Custom house of 3rd class, dep. on Callao.

CASAPALCA, in dep. of Junín ; lat. $11^{\circ} 38' S$. ; on Central Railway. A short private line runs hence to the El Carmen mines. Contains the principal smelting works in Peru.

CASMA, cap. of prov. of Santa, in dep. of Ancachs ; lat. $9^{\circ} 28' S$. Minor seaport. Port of call for P.S.N.C. and C.S.A.V. Telegraph to Lima. The district produces rice, sugar-cane, vines, maize, and coal ; petroleum, and gold exist. Exports cotton, corn, wood, charcoal.

Custom house of 2nd class, dep. on Callao.

CASTROVIRREINA, cap. of prov. of same name in dep. of Huancavelica ; lat. $13^{\circ} 25' S$. ; pop. 1,500. Old and somewhat decayed Spanish city, owing its former importance to the rich mines of silver and quicksilver in the district. Textiles are manufactured, and wool-bearing animals bred.

CATACAOS, small town in dep. of Piura ; lat. $50^{\circ} 12' S$. ; on R. Piura, 10 kil. S. of the town of Piura, with which it is connected by a light railway. Centre of the trade in "Panama" hats.

CAUCATO, in dep. of Ica ; custom house of 3rd class, dep. on Pisco.

CAUJUL, in prov. of Cajatambo, dep. of Ancachs. On line of projected railway from Huacho to Oyon ; lat. $10^{\circ} 45' S$. For industries of district, *see* Cajatambo.

CAYALTI, in dep. of Lambayeque, 36 kil. S.E. of port of Eten (*q.v.*), with which it is connected by a private agricultural railway.

CELENDÍN, cap. of Celendín prov., in dep. of Cajamarca ; lat. 6° 50' S. Centre of a mining district—gold, silver, copper, lead, coal, rock salt.

CERRO AZUL, seaport in prov. of Cañete, dep. of Lima ; lat. 13° S. ; port of call for steamers of the P.S.N.C. and C.S.A.V. Communications by railway with Cañete (10 k.) ; telegraph to Santa Barbara (on R. Cañete) and Lima. Exports sugar, ores, alcohol, cotton-seed, oil, swine, hides.

Custom house of 2nd class, dep. on Callao.

Guano islands to the north.

CERRO DE PASCO, or Pasco, cap. of the dep. of Junín, and also of the prov. of Pasco ; lat. 10° 40' S. ; 14,380 ft. above sea-level ; pop. about 9,000. Communications by railway *via* Oroya, with Lima and Callao (454 k.) ; and also junction with Goyllarisquisga (51 k.). The centre of a great mining district, long famous for its output of silver, but also rich in copper, coal, gold, salt, cinnabar, vanadium, and lead. The Cerro de Pasco Mining and Railway Co. (American) is largely concerned with the production of copper and coal.

CHACHAPOYAS, or **CHACAPOYAS**, cap. of the dep. of Amazonas, and also of the prov. of Chachapoyas ; lat. 6° 17' S. ; 9,200 ft. above sea-level ; pop. 4,000. Communications by road with Chilete (360 k.), and thence by railway (135.5 k.) with the port of Pacasmayo (495.5 k.). Centre of an inter-andine district, producing gold, sugar, tobacco, cotton. Is seat of a bishopric. Stands on the northern overland route to Iquitos (Pacasmayo-Cajamarca-Chachapoyas-Yurimaguas-Iquitos).

CHALA, PUERTO, seaport in the dep. of Arequipa, prov. Camaná ; lat. 50° 51' S. ; at mouth of R. Yauca. Port of call for P.S.N.C. and C.S.A.V. Chief exports : copper ore, wool, cattle.

Custom house of 3rd class, dep. on Mollendo.

CHALHUANCA, cap. of Aimaraes prov., of dep. of Apurímac ; lat. $14^{\circ} 24'$ S. ; on river of same name. Communications by telegraph with Lima. Products include Peruvian bark, textiles, gold, silver, copper, and saltpetre.

CHANCAY, in prov. of Chancay, and dep. of Lima ; lat. $11^{\circ} 30'$ S. Small seaport ; connected by railway with Palpa (25 k.), and by telegraph with Lima. Exports sugar.

Custom house of 3rd class, dep. on Callao.

CHICAMA, in dep. of La Libertad, on R. Chicama ; railway junction ; connected (1) with Trujillo and Salaverry, (2) with Ascope, (3) with Cartavio, and (4) —by privately owned line— with La Pampas (45 k.). The district produces sugar.

CHICLAYO, cap. of the dep. of Lambayeque, and of the prov. of Chiclayo ; lat. $6^{\circ} 48'$ S. ; 82 ft. above sea-level ; pop. 15,000. Communications by railway with the port of Etén (20 k.) and Cayalti to the S. ; with Lambayeque and Ferreñafe to the N. ; with Patapo to the E. ; and with Pimentel (14 k.) to the W. Sugar, rice, and cereals are grown in the district, and ponchos, cotton textiles, straw hats, and alcohol are manufactured.

CHILCA, small seaport in dep. of Lima ; lat. $12^{\circ} 20'$ S. Railway communication with Lima. Telegraph.

Custom house of 3rd class, dep. on Callao. It is believed that Chilca is to be made the military port of the Republic.

CHILETE, in dep. of Cajamarca ; lat. $70^{\circ} 20'$ S. Connected by railway with port of Pacasmayo (103 k.).

CHIMBOTE, seaport in Ferrol Bay, prov. of Santa, dep. Ancachs ; lat. $9^{\circ} 5'$ S. ; pop. 1,500. Communications by railway with Tablones (57 k.). In telegraphic communication with Lima and Ferreñefe. Exports sugar, copper, ores, coffee. Imports, general.

Custom house of 2nd class, dep. on Callao.

Considerable guano fields to north and south.

CHINCHA, ISLAS DE ; lat. $13^{\circ} 50'$ S. ; off the coast of Ica ; guano field.

Custom house of 2nd class, dep. on Pisco.

CHINCHA ALTA, cap. of prov. of Chincha, in dep. of Ica ; lat. $13^{\circ} 22'$ S. ; pop. 3,000. Communications by railway with its port of Tambo de Mora (12 k.). Industries : wine, sugar-refining, alcohol distilling.

CHIQUEÁN, in prov. of Bolognesi, dep. of Ancachs ; lat. $10^{\circ} 9'$ S. For industries, *see* Cajatambo.

CHIRA. Custom house of 3rd class, dep. on Mollendo.

CHORRILLOS, in dep. and prov. of Lima ; lat. $12^{\circ} 11'$ S. ; a bathing station for the inhabitants of Lima, with which it is connected by a railway (14 k.), an electric light railway (13 k.), and electric tramway (17 k.). The town is built on a cliff at the foot of the Morro Solar. The anchorage, owing to the swell, is poor ; landing is effected by means of specially built canoes.

CHOTA, cap. of Chota prov., in dep. of Cajamarca ; lat. $6^{\circ} 30'$ S. Centre of a mining district : gold, silver, and lead.

CHUQUIBAMBA, cap. of Condesuyos prov., in dep. of Arequipa ; lat. $15^{\circ} 50'$ S. Centre of agricultural district ; gold and silver are found.

COCOTEA, on coast of Arequipa, near Moquegua ; lat. $17^{\circ} 14'$ S. Guano exported.

Custom house of 3rd class, dep. on Mollendo.

COLÁN, in dep. of Piura, prov. of Paita ; lat. $5^{\circ} 1'$ S. Custom house of 3rd class, dep. on Paita.

CONTAMANA, cap. of Ucayali prov., in dep. of Loreto ; lat. $7^{\circ} 50'$ S. ; on R. Ucayali. Wireless telegraph station. Produces sugar-cane, yuca, and bananas ; manufactures sugar and alcohol.

CONTUMAZÁ, cap. of prov. of Contumazá, in dep. of Cajamarca ; lat. $7^{\circ} 20'$ S. Produces rice ; gold and silver ; woollen textiles.

COTAHUASI, cap. of La Unión prov., in dep. of Arequipa ; lat. 15° S. Products include Peruvian bark ; gold, silver, salt ; wine, carpets, and woollen textiles.

CUZCO, cap. of the dep. of Cuzco, and also of the prov. of the same name; lat. $13^{\circ} 31' S.$; 11,445 ft. above sea-level; pop. about 15,000. Communications by the Southern Railway (of which it is the Northern terminus with Mollendo) (816.6 k.). One of the most ancient cities in Peru, famous for its Inca and pre-Inca remains. Seat of a university and bishopric. The district contains coal and copper, but is mainly agricultural, producing maize, wheat, barley, coffee, cocoa, coca, chocolate, and sugar, and also wool.

The Spanish city is largely built on the foundations of former Inca work. There are three large plazas. The streets are narrow; there is hardly any wheeled traffic; llamas and donkeys abound. The great majority of the inhabitants is Indian, and the Quichua language prevails. The Indian markets form a characteristic feature. There is little manufacture. Above the city stand the walls of the famous prehistoric fortress of Sacsahuaman.

E

ENSENADA, LA, in dep. of Arequipa; station on the Southern Railway, 21 kil. from Mollendo. Connected by private railway with the *hacienda* of Pampa Blanca in the Tambo valley (20 k.).

ETEN, in prov. of Chiclayo, and dep. of Lambayeque; lat. $6^{\circ} 50' S.$; pop. 3,000. Connected by railway with Cayalti (36 k.), Chiclayo, Lambayeque, and Ferreñafe (98 k.); also with Pátapo (24 k.). Exports (sugar, rice, cotton, tobacco, "Panama" hats) reach an annual average of £140,000. Port of call for P.S.N.C. and C.S.A. de V.

Custom house of 1st class. The town of Eten is about $1\frac{1}{2}$ m. from the port.

F

REFREÑAFE, in dep. of Lambayeque; lat. $6^{\circ} 40' S.$; present terminus of a railway, *via* Lambeayque, to port of Eten (43 k.).

G

GOYLLARISQUISGA, mining district in dep. of Junín, connected by branch railway with Cerro de Pasco (43 k.); lat. $10^{\circ} 15' S.$

A railway is projected from this place *via* Huánuco to Pucallpa on the Ucayali, thus linking Lima and Iquitos.

GUADALUPE, in the dep. of Lambayeque ; lat. 7° 18' S. ; pop. 2,000. Connected by railway with the port of Pacasmayo, (43 k.). Produces sugar, rice, maize, fruit. (There is another place of this name on the Pisco-Ica Railway, 11 kil. from Ica.)

GUAÑAPE, in dep. of La Libertad ; lat. 8° 25' S. A little N. of the guano islands of Guañape. Cotton and firewood are exported.

Custom house of 3rd class, dep. on Salaverry.

H

HEATH, at junction of the rivers Heath and Madre de Dios ; lat. 12° 30' S.

River custom house of 3rd class, dep. on Mollendo.

HUACHO, seaport in the dep. of Lima ; cap. of the prov. of Chancay ; lat. 11° 8' S.W. Connected by railway, *via* Ancón, with Lima (253 k.). Pigs and cattle are extensively bred, and lard, sugar, and alcohol manufactured and exported ; deposits of salt, coal, and silver are worked. Regular port of call for steamers of the P.S.N.C. and C.S.A. de V. The port has a pier, and is well supplied with fresh food, water, and wood. Pop. 9,000. Telegraph to Lima.

Custom house of 2nd class, dep. on Callao.

HUALGAYOC, cap. of Hualgayoc prov., in dep. of Cajamarca ; lat. 6° 40' S. Chiefly mining industries : gold, silver, copper, lead, tin, iron, coal. Cereals, coffee, and sugar are grown.

HUAMACHUCO, cap. of the prov. of the same name, in the dep. of La Libertad ; lat. 7° 35' S. The district is mainly agricultural ; the products include cereals, coffee, coca ; gold and coal are mined.

HUANCABAMBA, cap. of prov. of same name in dep. of Piura ; lat. 5° 25' S. ; pop. 600. Cereals, sugar, and cotton are grown ; fine wool is produced. Communication by road with Piura to the W., and Puerto Borja on the upper Marañon, to the E.

HUANCANÉ, cap. of Huancané prov., in dep. of Puno ; lat. $15^{\circ} 12' S.$; at N. end of L. Titicaca. Pasturage for cattle and wool-bearing animals ; mining products of district include silver, copper, cinnabar, tin, gold, coal, naphtha, petroleum, marble.

HUANCVELICA, cap. of the dep. of Huancavelica, and also of the prov. of the same name ; lat. $12^{\circ} 33' S.$; 12,530 ft. above sea-level ; pop. 4,000. The district is rich in silver, cinnabar, and salt ; the old quicksilver mines are now abandoned. All kinds of wool-bearing animals abound. Seat of a bishopric, and formerly one of the wealthiest cities in Peru. Communications : (1) by road with Huancayo (120 k.), and thence by railway (347 k.) with Callao (467 k.) ; (2) by road with Ica (300 k.), and thence by railway (74 k.) with Pisco (374 k.).

HUANCAYO, cap. of prov. of Huancayo, in dep. of Junín ; lat. $12^{\circ} 8' S.$; 10,830 ft. above sea-level ; on R. Mantaró ; pop. 6,000. Communication with Callao (347 k.) *via* Oroya, by the Central Railway. A railway is in course of construction from Huancayo southwards to Ayacucho (260 k.). Produces silver, copper, and the other products common in dep. of Junín.

HUANCHACO, in dep. of La Libertad ; lat. $8^{\circ} 5' S.$ Pop. 500. Communication by railway with Tres Palos (14 k.) and La Roma (54 k.). Port of call for P.S.N.C. and C.S.A.V. Other lines also call to take cargoes of sugar. Chief export : sugar. Telephone to Trujillo.

Custom house of 3rd class, dep. on Salaverry.

HUANTA, cap. of Huanta prov., in dep. of Ayacucho ; lat. $12^{\circ} 45' S.$ Produces vines, sugar, and cereals ; gold and silver. Flannel textiles are manufactured, and wine, sugar, and alcohol made.

HUÁNUCO, cap. of the dep. of Huánuco, dep. of the prov. of same name ; lat. $9^{\circ} 55' S.$; 6,200 ft. above sea-level ; on the upper Huallaga ; pop. 6,000. Communication by road with Cerro de Pasco (110 k.), and thence by rail (454 k.), *via* Oroya, with Callao (564 k.). Produces gold, silver, sugar, coffee, cocaine, tobacco, and cereals ; also cattle, sheep, and pigs.

HUARÁS, cap. of the dep. of Ancachs, and also of the prov. of Huarás; lat. $9^{\circ} 30'$ S.; 9,930 ft. above sea-level; on R. Santa; pop. 10,000. Communications: (1) direct by road with port of Casma (132 k.); and (2) by mixed service route, *i.e.*, road (110 k.) and railway (104 k.), with port of Chimbote. An ancient city, seat of a bishopric, and of a Superior Court. The mean temperature is 59° Fahr. The district is rich in minerals, especially silver, lead, copper, and anthracite coal; cereals and potatoes are grown.

HUARI, cap. of Huari prov., in dep. of Ancachs; lat. $9^{\circ} 20'$ S. Industries: agriculture and mining (silver, gold, lead, and coal are found).

HUARMEY, in prov. of Huarás, in dep. of Ancachs; lat. $10^{\circ} 6'$ S. Minor seaport. Steamers of the C.S.A.V. call fortnightly. Telegraph to Lima. Chief trade, firewood.

Custom house of 3rd class, dep. on Callao.

I

ICA, cap. of dep. of Ica, and also of prov. of same name; lat. $14^{\circ} 4'$ S.; 1,310 ft. above sea-level; on R. Ica; pop. 5,000. Communication with port of Pisco by railway (74 k.). Industries, cotton textiles, wine, alcohol, bee-keeping. Bird pepper (*aji*) is grown, and copper, gypsum, salt, kaolin, and gold are found in the district.

ILO, or **YLO**, with Pacocha, seaport in dep. of Moquegua; lat. $17^{\circ} 39'$ S.; at mouth of R. Ilo; pop. 1,800. Communication by railway with Moquegua (100 k.). Port of call for P.S.N.C. and C.S.A.V. Telegraph. Clayton disinfecting apparatus.

Custom house of 1st class. The most northerly port in Peru; exports wine, spirits, olives, olive oil.

INAMBARI, cap. of Tahuamanu prov., in dep. of Madre de Dios; lat. $13^{\circ} 40'$ S. on Bolivian frontier. Products include: coffee, coca, rubber, and placer gold.

INAPARI, or **TACNA**. River custom house of 3rd class, dep. on Mollendo.

INDEPENDENCIA, BAHIA DE LA, in dep. of Ica ; lat. 14° 18' S. Guano exported.

Custom house of 3rd class, dep. on Pisco.

IQUITOS, cap. of the dep. of Loreto ; lat. 3° 44' S. ; on left bank of the Marañon or Upper Amazon, 2,500 m. from its mouth ; 350 ft. above sea-level ; pop. normally 15,000, rising to 20,000 in the height of the rubber season ; mean temperature, 85-90° Fahr. Communication by regular service of ocean-going steamers down stream with Pará, and so to Europe and N. America ; also by two routes across the Andes westwards : (a) *via* Yurimaguas, Chachapoyas, Cajamarca to Pacasmayo, (b) *via* Rivers Ucayali, Pachitea, Pichis, and mule-road to Oroya, and thence by railway to Lima and Callao. The fortnightly mail follows route (b), about 2,100 kils., taking 17 days. Railway from Oroya to Pucallpa is being constructed.

Exports mainly rubber and ivory nuts ; imports food-stuffs (including rice), dry goods, oil, soap.

Custom house of 1st class.

There is a high-powered telegraphic installation here on the Telefunken system, communicating with the river ports on the Ucayali ; directly with Lima ; and with the Putumayo. As yet no commercial system is established with Brazil, *via* Manáos, though private messages have been sent.

ISLAY, minor port in prov. of Islay, dep. of Arequipa ; lat. 16° 55' S.

Custom house of 3rd class, dep. on Mollendo.

J

JAÉN DE BRACAMOROS, cap. of prov. of Jaén, in dep. of Cajamarca ; lat. 5° 38' S. The district produces gold and silver (placer gold in R. Chinchipa) ; coca, quinine, coffee, and cocoa.

JAUJA, SANTA FÉ DE, cap. of prov. of Jauja, in dep. of Junin ; lat. 11° 44' S. ; 11,050 ft. above sea-level ; on R. Jauja ; pop. 3,000. Communicates by branch line (3 k.) with the Oroya-Huancayo branch of the Central Railway, and so with Callao (282 k.). The district grows cereals, coffee,

sugar, and produces coal, silver, copper, sugar, alcohol, textiles, and hats.

JESSUP. See Yessup.

JULI, cap. of Chucuito prov., in dep. of Puno ; lat. $16^{\circ} 10' S.$; on W. shore of L. Titicaca. Products : Peruvian bark, silver, gold, copper.

JULIACA, in the prov. and dep. of Puno ; lat. $15^{\circ} 29' S.$; pop. 2,500. Junction on the Southern Railway. Communicates with Puno (47 k.), Cuzco (340.6 k.), and with Mollendo (467 k.).

L

LAMBAYEQUE, cap. of prov. of Lambayeque, in dep. of same name ; lat. $6^{\circ} 4' S.$; pop. 8,000. Communicates by railway with the ports of Pimentel (24 k.), and Eten (31 k.), and with Ferreñafe to the E. (15 k.). Wool and cotton textiles, soap and quinine are manufactured, and rice is grown and exported in large quantities from the district ; also guano from Lobos islands.

The city has a fine cathedral, a college, and a hospital.

LAMPA, cap. of Lampa prov., in dep. of Puno ; lat. $15^{\circ} 22' S.$; 30 m. W. of Juliaca. Silver is mined, and pottery manufactured.

LÁMUD, cap. of Luya prov., in dep. of Amazonas ; lat. $6^{\circ} 10' S.$; on R. Santiago. Agricultural district ; gold is found higher up the river at Santo Tomás, and lower down at Shipasbamba.

LETICIA, on the R. Amazon, near the Brazilian frontier ; lat. $4^{\circ} 10' S.$

Custom house of 2nd class, dep. on Iquitos.

LIBERTAD. River custom house of 3rd class, dep. on Mollendo.

LIMA, cap. of the Republic of Peru, and of the dep. and the prov. of Lima ; lat. $12^{\circ} 3' S.$; on left bank of R. Rimac, about 8 m. E. of Callao ; pop. 145,000. Communicates with its port, Callao (13 k.), by two steam railways and two electric lines ; with the interior, *via* Oroya, by means of the

Central Railway (Oroya, 209 k. ; Huancayo, 333 k. ; Cerro de Pasco, 340 k.) ; and northwards with Ancón (38 k.), and Huacho (182 k.). There are short lines to the neighbouring watering-places, Chorrillos (14 k.), and Magdalena (7·6 k.) ; *see also* Callao.

Lima (the name is a corruption of Rimac), founded by Pizarro in 1535, was for nearly three centuries the seat of Spanish sovereignty, and the greatest and wealthiest city in the New World. It is still a great capital, the seat of government of the Republic, and the leading city in Peru. It is the seat of a university and an archbishopric, with numerous clubs, libraries, museums, theatres, etc. The climate is cool and rainless, though heavy mists are frequent. The national mint is here. The industries include cotton spinning and weaving ; woollen goods and cloth mills ; tobacco, match, chocolate, paper, biscuit, and soap factories ; brewing and distilling ; cotton-seed oil making. Electric power is supplied in great abundance from the Rimac. Telegraphic communication with the interior is mainly by government service ; full telephonic facilities with neighbouring towns, and a high-powered wireless telegraphic installation communicating direct with Iquitos.

There is an English church.

LIRCAY, cap. of Angaraes prov., in dep. of Huanca-velica ; lat. 13° S. Industries : agriculture, cattle-raising, gold-mining.

LLATA, cap. of Huamalíes prov., in dep. of Huánuco ; lat. 9° 22' S. Industries : agriculture, mining, and textile manufactures (sugar, coca, coal, gold).

LOBITOS, 7 m. N. of Talara, in dep. of Piura ; lat. 4° 30' S. Exports oil.

Custom house of 3rd class, dep. on Paita.

LOMAS, PUERTO, small port on coast of the dep. of Ica ; lat. 15° 33' S. ; serves as bathing-place for Acarí ; port of call for P.S.N.C. and C.S.A. de V. Sea-otters plentiful at certain seasons. Exports cattle.

Custom house of 2nd class, dep. on Mollendo.

LORETO, in the extreme E. of the dep. of Loreto ; lat.

4° 8' S. ; on N. bank of the Marañon, not far from the Brazilian frontier ; pop. 1,200. An important river port and commercial centre ; produces rubber.

M

MACUSANI, cap. of Carabaya prov., in dep. of Puno ; lat. 14° 25' S. Products include coca, sugar-cane ; coal, iron, and placer gold ; alcohol, preserved and stringed meats.

MAGDALENA DEL MAR, LA (or **MAGDALENA NUEVA**). Bathing resort, S. of Lima, with which it is connected by a short railway (7·6 k.).

MALA. Custom house of 3rd class, dep. on Callao.

MALABRIGO, on coast of La Libertad dep. ; lat. 7° 42' S. Custom house of 3rd class, dep. on Salaverry.

MALDONADO, PUERTO, capital of the dep. of Madre de Dios, and of the prov. of Tambopata, at the junction of the rivers Tambopata and Madre de Dios ; lat. 12° 36' S. Communications : (1) by steamer down the Madre de Dios with the Amazon ; and (2) by canoe with Astillero, thence by road to Tirapata, and by railway to Mollendo. The second route occupies about 22 days. Produces rubber, coffee, cocoa, gold and silver.

River custom house of 2nd class, dep. on Mollendo.

MÁNCORA, on coast of dep. of Piura ; lat. 4° 16' S. Exports wood.

Custom house of 3rd class, dep. on Paita.

MANU, cap. of Manu prov., in dep. of Madre de Dios. Produces rubber and cocoa.

MASISEA, river port on the Ucayali, below junction of the Pachitea, dep. of Loreto ; lat. 8° 40' S. Wireless telegraph station.

MATUCANA, cap. of Huarochiri prov., in dep. of Lima ; lat. 11° 52' S. ; 7,730 ft. above sea-level. Communicates by Central Railway with Lima and Callao (103 k.) and with Oroya (*q.v.*, 119 k.). Industries : agriculture, pottery, mining (coal, silver, copper, gold, bismuth, antimony, rock crystal).

MENOCUCHO, in dep. of La Libertad; connected by railway with Trujillo (26 k.). Produces sugar.

MERCED DE CHANCHAMAYO, LA, in dep. of Junín; lat. 11° 5' S. Communicates by road with Oroya (111 k.), and thence by railway with Callao (222 k.). On the Pichis route to Iquitos (*q.v.*).

MOLLENDO, cap. of prov. of Islay, in dep. of Arequipa; lat. 17° S.; pop. 7,000. Communicates by the Southern Railway with Arequipa (172 k.), Puno (523 k.), and Cuzco (816 k.).

The port has an annual trade of about £1,000,000. It is important as the Pacific terminus of the Southern Railway, and as a channel of traffic to and from Bolivia; but it has been hard hit by the competition of the Arica-La Paz Railway. The anchorage is not sheltered and transit is effected by means of whale-boats and lighters. A breakwater is being constructed.

Mollendo possesses a hospital, and a custom house of the 1st class. It is a port of call for the P.S.N.C., the C.S.A.V., and the Kosmos lines. It has telegraphic facilities both inland and by submarine cable. The chief exports are: wool, copper, silver, borax, together with tin and rubber from Bolivia. The imports are general merchandise.

MOQUEGUA, cap. of dep. of same name; lat. 17° 15' S.; 4,475 ft. above sea-level; pop. 4,000. Communicates by railway with Ilo (100 k.). In earthquake region. Vines, figs, olives are grown, and wine and alcohol made; mineral products include copper and silver, marble, gypsum, sulphur, kaolin, borax, tin, coal, salt, manganese.

MOROCOCHA, copper mining district in dep. of Lima, connected by branch line with Ticlio (14·6 k.) on the Central Railway; thence with Callao and Lima, with Oroya and Huancayo, and with Cerro Pasco.

MOYOBAMBA, cap. of prov. of Moyobamba, in dep. of San Martín; lat. 6° 1' S.; 2,820 ft. above sea-level; pop. 4,000. Communications by road: (1) with the river port of Yurimaguas (*q.v.*) on the Huallaga (170 k.); and (2) with

Chachapoyas (170 k.), and thence with the seaport of Pacasmayo. (*See* under Chachapoyas.) Grows cocoa and bananas, and produces gold, coal, iron, sulphur, matting, and straw hats.

N

NAUTA, river port at junction of the Ucayali and the Marañon ; lat. 4° 25' S.

NAZARETH, river port on the Javari ; lat. 4° S.

NASCA, in prov. and dep. of Ica.

Custom house of 3rd class, dep. on Pisco.

O

OCOÑA, on coast of dep. of Arequipa, prov. of Camaná ; lat. 16° 20' S.

Custom house of 3rd class, dep. on Mollendo.

OROYA, LA, in prov. of Yauli, and dep. of Junín ; lat. 11° 30' S. ; 11,060 ft. above sea-level on river Mantaro. Railway centre. Communicates with Callao (222 k.), Huancayo (125·6 k.), and Cerro de Pasco (132 k.).

OTUSCO, cap. of Otusco prov., in dep. of La Libertad ; lat. 7° 53' S. ; pop. 900. Industries : agriculture (sugar, coffee, coca, cereals) ; mining (gold, silver, tin, coal). Cocaine is manufactured.

OYÓN, in prov. of Cajatambo, dep. of Ancachs ; lat. 10° 40' S. Terminus of projected railway from port of Huacho.

P

PACASMAYO, seaport in prov. of Pacasmayo, and dep. of La Libertad ; lat. 7° 24' S. ; pop. 3,000. Communications by railway with Guadalupe (43 k.) and Chilete (135·5 k.) ; the junction is at Calisnique (16 k.). Port of call for P.S.N.C. and C.S.A.V. Telegraph to Lima. Chief exports : sugar, rice, hides, coca, silver, copper. There are coal deposits in the interior. The town has a railway engineering shop. Telephone to Cajamarca.

Custom house of 1st class.

PAITA, cap. of the prov. of Paita, in the dep. of Piura ; lat. $5^{\circ} 5' S.$; pop. 3,000. Port of call for P.S.N.C. and C.S.A.V. Communications by railway with Sullana and Piura (97 k.), and by cable with Panama and southern ports as far as Valparaiso. Excellent harbour, with growing trade. Exports : cotton, cotton seed, sugar, hides, straw hats. Important oil-fields are being opened up.

Custom house of 1st class ; Clayton disinfecting apparatus.

PALPA, in dep. of Lima ; *hacienda* connected by railway with port of Chancay (25 k.).

(There is another Palpa in dep. and prov. of Ica.)

PAMPA BLANCA, agricultural district in dep. of Arequipa ; connected by private railway with La Ensenada (20 k.), and with Mollendo (41 k.) by the Southern Railway.

PAMPAS, cap. of the prov. of Tayacaja in dep. of Huanavelica ; lat. $12^{\circ} 18' S.$; 7,000 ft. above sea-level ; pop. 3,000. Industries : agriculture, mining, cattle-raising ; leather, sugar, cheese, and alcohol are made.

(Other towns in the prov. of Huarás, Yauyos, and Pallasca bear this name.)

PARAMONGA, in dep. of Lima ; connected by a short private agricultural railway with Pativilca, and so with Supe (20 k.).

PATAPO, in dep. of Lambayeque ; lat. $6^{\circ} 50' S.$; connected by railway with Chiclayo (24 k.), and thence (43 k.) with Eten (67 k.). Produces rice.

PATIVILCA, small town in dep. of Lima ; lat. $10^{\circ} 40' S.$; connected by railway with (1) Barranca and Supe (12.2 k.) ; and (2) with Paramonga (private line) on R. Pativilca.

PAUCARTAMBO, cap. of Paucartambo prov., of Cuzco dep. ; lat. $13^{\circ} 25' S.$; on river of same name. Industries : agriculture, cattle-raising, textiles.

PAUSA, cap. of Parinacochas prov., in dep. of Ayacucho ; lat. $15^{\circ} 20' S.$ Industries : agriculture, mining (gold, silver, asphalt) ; textile industries. Important wool market ;

woolbearing animals are bred largely in the district on natural pasturage.

PIMENTEL, in prov. of Chiclayo, dep. of Lambayeque ; lat. $6^{\circ} 45'$ S. Communicates by railway with Chiclayo (14 k.), and so with Lambayeque (24 k.), and Eten (*q.v.*). Chief export rice ; minor exports : sugar, alcohol, hats, cattle.

Custom house of 2nd class, dep. on Eten.

PISACOMA, in dep. of Puno ; lat. $16^{\circ} 50'$ S. ; on the frontier between Peru and Bolivia, S. of L. Titicaca.

Custom house of 3rd class, dep. on Ilo.

PISCO, seaport, cap. of prov. of Pisco, in the dep. of Ica ; lat. $13^{\circ} 42'$ S. Communicates with Ica by railway (74 k.) Extensive coal-fields at Paracas ; guano from the neighbouring islands. Port of call for steamers of P.S.N.C. and C.S.A.V. Hospital. Telegraph. Pop. 4,000. Exports : ores, cotton, wool, hides, cotton seed and oil cakes, native whiskies and wine. Imports : general merchandise and provisions.

Custom house of 1st class.

PIURA, cap. of dep. of Piura, and of the prov. of the same name ; lat. $5^{\circ} 11'$ S. ; 165 ft. above sea-level ; mean annual temperature, 77° Fahr. Connected by railway with the port of Paita (97 k.) and with Catacaos (10 k.).

Piura is a town of adobe houses, with an unfinished cathedral ; it stands a little to the S. of the old San Miguel de Piura ; pop. about 5,000. The province produces cotton, rice, and Peruvian bark ; iron ores and coal exist near the city. The industries include cotton textiles, straw hats, tobacco, and cigarettes.

PIZARRO, PUERTO, or **LA PALIZADA**, seaport in prov. of Tumbes ; lat. $3^{\circ} 30'$ S. ; at mouth of R. Tumbes. Puerto Pizarro has taken the place of old Tumbes, owing to alterations in the mouth of the river ; the ancient mouth is 3 m. to the E. Pop. 2,000. Port of call for vessels of the P.S.N.C. and C.S.A.V.

PLAYA CHICA, in Salinas Bay, dep. of Lima ; lat. $11^{\circ} 14'$ S. Salt is brought from the salt lakes 5 m. to the S., and shipped from the pier. Railway to Salinas (10 k.).

Custom house of 3rd class, dep. on Callao.

POMABAMBA, cap. of Pomabamba prov., in dep. of Ancachs; lat. $8^{\circ} 52'$ S. Produces cereals, textiles, silver, gold (both placer and mining), and coal.

PUCALPA, river port on the upper Ucayali; lat. $8^{\circ} 25'$ S.; towards which a railway from Goyllarisquisga is projected.

PUNO, cap. of the dep. of Puno, and also of the prov. of Puno; lat. $15^{\circ} 50'$ S.; 12,645 ft. above sea-level; pop. about 5,000; situated on the N.W. shore of L. Titicaca. Communicates (1) by railway, *via* Juliaca, with Mollendo (523 k.); (2) by tri-weekly steamer service, with Guaqui in Bolivia, and thence by railway with La Paz. The district is rich in silver, lead, copper, zinc, cinnabar, and cobalt; alpaca and sheep wool is abundant; Peruvian bark, barley, and potatoes are grown. Seat of a bishopric and a Superior Court. Pop. 7,000. Smelting is carried on extensively in works recently erected.

Custom house of 3rd class, dep. on Mollendo.

PUNTA, LA, bathing station and suburb of Callao, with which it is connected by short branch railway (2.6 k.).

PUQUIO, cap. of Lucanas prov., in dep. of Ayacucho; lat. $14^{\circ} 50'$ S. Products: cereals, Peruvian bark, gold, silver, copper, wool-bearing animals are bred on natural pasturage.

Q

QUILCA, at mouth of R. Quilca, in dep. of Arequipa; lat. $16^{\circ} 43'$ S. Steamers of the P.S.N.C. and C.S.A.V. call every three weeks. Telegraph to Lima.

Custom house of 3rd class, dep. on Mollendo.

R

RARUBO, in dep. of Cuzco, 15 m. S. of the city of Cuzco.

RECUAY, in prov. of Huarás, dep. of Ancachs; lat. $9^{\circ} 40'$ S. On line of projected railway from Tablones along the Huaylas valley. For industries, *see* Huarás.

REQUENA, small river port on the Ucayali, dep. of Loreto. Wireless telegraph station.

REVENTAZON, in dep. of Piura; centre of a sulphur-mining district; connected by private mineral railway with the port of Bayover (*q.v.*).

S

SALAVERRY, seaport in prov. of Trujillo, and dep. of La Libertad ; lat. $8^{\circ} 14' S.$; pop. 1,100. Communicates by railway with Trujillo (14.5 k.), and thence with Chocope and Ascope (82 k.) ; also with Menocucho to the N.E. Coal is found in the neighbourhood. Port of call for P.S.N.C. and C.S.A.V. Exports mainly sugar, rice, hides. Telegraph. Custom house of 1st class.

SALINAS DE HUACHO, in dep. of Lima ; lat. $11^{\circ} 20' S.$; salt district, connected by short private railway with Playa Chica (10 k.).

Custom house of 3rd class, dep. on Callao.

SALINAS DE OTUNA. Custom house of 3rd class, dep. on Pisco.

SAMA, in dep. of Moquegua, on R. Sama ; lat. $17^{\circ} 80' S.$, on the (provincial) frontier between Peru and Chile.

Custom house of 2nd class, dep. on Ilo.

SAMANCO, in prov. of Santa, dep. Ancachs ; on R. Nepeña ; lat. $9^{\circ} 15' S.$ Port of call for P.S.N.C. and C.S.A.V. Exports rice, cotton, cereals, firewood.

Custom house of 2nd class, dep. on Callao.

SAN BARTOLOMÉ DE CHAO, in dep. of La Libertad.

Custom house of 3rd class, dep. on Salaverry.

SAN CARLOS, cap. of Bongará prov., in dep. of Amazonas ; lat. $5^{\circ} 50' S.$; centre of agricultural district. At Shipasbamba, on the R. Santiago, a little to the W., are gold placer workings.

SAN JOSÉ (DE LAMBAYEQUE), in dep. of Lambayeque ; lat. $6^{\circ} 45' S.$

Custom house of 3rd class, dep. on Eten.

SAN MIGUEL, cap. of La Mar prov., in dep. of Ayacucho ; lat. $12^{\circ} 52' S.$ The district is mainly agricultural, producing maize, Peruvian bark, cereals, coca, cocoa, coffee, and cotton. Silver, nickel, cobalt, and manganese are found.

SAN NICOLÁS, in dep. of Lima ; connected by short private agricultural line with port of Supe (*q.v.*) (6 k.).

(There is a guano island of San Nicolás off the coast of dep. of Ica ; and another San Nicolás in dep. of Amazonas, prov. of Chachapoyas.)

SAN PEDRO DE LLOC, cap. of prov. of Pacasmayo, in dep. of La Libertad ; lat. $7^{\circ} 26'$ S. ; pop. 15,000. Communicates by railway with port of Pacasmayo (8 k.), and also with Guadalupe, Yonan, and Chilete. Cotton textiles are manufactured, gold and copper mined, and rice, sugar, coffee, and cereals are grown.

SANDIA, cap. of Sandia prov., in dep. of Puno ; lat. $14^{\circ} 20'$ S. Products include tobacco, coca, Peruvian bark ; gold (mining and placer) ; wool-bearing animals bred on natural pasturage.

SANTA, minor port at mouth of R. Santa, in dep. of Ancachs ; lat. $8^{\circ} 59'$ S. Exports salt, minerals, rice, and hides.

Custom house of 3rd class, dep. on Callao.

SANTA ANA, in dep. of Cuzco ; lat. $9^{\circ} 30'$ S. Port on R. Vilcanota.

SANTO TOMÁS, (1) in dep. of Amazonas ; lat. $6^{\circ} 30'$ S. ; on R. Santiago. Gold-mining region.

(2) Cap. of Chumbivilcas prov., in dep. of Cuzco ; lat. $14^{\circ} 52'$ S. ; on R. Santo Tomás, flowing N. towards the Apurimac. Industries : textiles and mining (gold, iron, silver, copper, tin, lead, salt).

SANTIAGO DE CHUCO, cap. of prov. of same name, in dep. of La Libertad ; lat. $8^{\circ} 2'$ S. ; pop. 1,200. Gold, silver, and coal are produced in the district ; carpets, woollen and cotton textiles are manufactured.

SAPOSOA, cap. of Huallaga prov., in dep. of Loreto ; lat., $6^{\circ} 50'$ S. Products include tobacco, sugar, coffee, coca, quca, bananas ; alcohol, sugar, and textiles are manufactured.

SAYAN, in dep. of Lima on boundary with Ancachs ; lat. 11° S. Connected by railway with Huacho. For industries, *see* Huacho and Cajatambo.

SECHURA, in prov. of Piura and dep. of Piura ; lat. $5^{\circ} 34'$ S. ; 4 m. from mouth of R. Piura. Exports cotton and salt ; sulphur, borax, and mica are found in the neighbourhood ; pearls are found in the bay.

Custom house of 3rd class, dep. on Paita.

SICUANI, cap. of Canchis prov., in dep. of Cuzco ; lat. $14^{\circ} 25'$ S. Communicates by Southern Railway with Cuzco (143 k.) and Mollendo (673 k.). Industries : agriculture, cattle-raising, pottery, textiles, mining (cobalt, iron, silver, copper).

SUPE, in dep. of Lima, prov. of Chancay ; lat. $10^{\circ} 45'$ S. Minor port, connected by rail with Barranca (12 k.), Pativilca and Paramonga to the N., and with San Nicolás (6 k.) to the S. Port of call for P.S.N.C. and C.S.A.V. ; telegraph. Exports sugar, alcohol, and corn.

Custom house of 3rd class, dep. on Callao.

T

TABLONES, in dep. of Ancachs, on R. Santa ; connected by railway with port of Chimbote (57 k.). The line continues to "kilometro 104," and is intended to follow the Huailas Valley S. *via* Huarás and Recuay, and ultimately to reach Cerro de Pasco.

TACNA. *See* Inapari.

TAHUAMANU. River custom house of 3rd class, dep. on Mollendo.

TALARA, small seaport in dep. of Piura ; lat. $4^{\circ} 30'$ S. ; exports oil and oil products from the petroleum fields at Negritos. Telegraph, but no regular steamer service.

Custom house of 2nd class, dep. on Paita.

TAMBO, in Arequipa, dep. ; connected by railway with Mollendo (30 k.).

TAMBO DE MORA, minor port in dep. of Ica ; lat. $13^{\circ} 35'$ S. Exports native whiskies and wines.

Custom house of 2nd class, dep. on Pisco.

TAMBOBAMBA, cap. of Cotabambas prov. of dep. of Apurimac; lat. $13^{\circ} 45'$ S. Industries: agriculture (incl. sugar), and mining (gold and silver).

TARAPOTO, cap. of the prov. of San Martín in the dep. of Loreto; lat. $6^{\circ} 38'$ S.; pop. 900. Communicates by road and cattle tram with Yurimaguas (*q.v.*) on the R. Huallaga (90 k.). Produces tobacco, coffee, cotton, sugar, and rubber; sugar and alcohol are manufactured.

TARMA, cap. of the prov. of Tarma, in the dep. of Junín; lat. $11^{\circ} 24'$ S.; 10,025 ft. above sea-level; pop. 8,000. Communicates by road with Oroya (33 k.), and thence by railway (222 k.) with Callao. Centre of a very healthy, rich and fertile district, producing silver, copper, coal, salt-petre; also cereals, coffee, sugar, cocoa, Peruvian bark; cattle and wool-bearing animals are reared, and textiles and straw hats are made.

TAYABAMBA, cap. of prov. of Patás in dep. of La Libertad; lat. $8^{\circ} 10'$ S. Centre of agricultural, pastoral, and mining region. Products include cereals, coca, sugar, gold, silver, and coal.

TICLIO, in dep. of Lima. Station on the Central Railway (Callao-Oroya), about 170 kil. from Callao. A branch line runs hence to the mines of Morococha (14.6 k.).

TRES PALOS, in dep. of La Libertad; connected with port of Huanchaco (*q.v.*), 14 k., and with the sugar plantations of La Roma, 54 k., by a private railway.

TRUJILLO or **TRUXILLO**, cap. of prov. of Trujillo, in dep. of La Libertad; lat. $8^{\circ} 7'$ S.; on R. Moche; 202 ft. above sea-level; pop. 10,000. Communicates by railway with the port of Salaverry (14.5 k.); also with Chocope and Ascope (67.5 k.) to the N., and with Menocucho (26 k.) to the N.E. Ancient Chimu city; seat of university, Superior Court, and bishopric. Industries: sugar-refining, gold, silver, and salt mining, tobacco. Electric power supply.

Extensive ruins of the ancient Chimu population exist in the neighbourhood, and from these abundant evidence of the ancient arts of pottery and weaving have been obtained.

The present city ranks next in importance to Lima and Callao in the coast region. It suffered greatly in the Chilean war of 1881, but has recovered steadily. Its prosperity depends mainly on the sugar plantations of the vicinity.

TUMBES, cap. of the littoral prov. of Tumbes, formerly in dep. of Piura ; lat. $3^{\circ} 30'$ S. ; on R. Tumbes ; pop. 2,000. Communicates by railway with the port of La Palizada or Puerto Pizarro (11 k.). The new town stands about 18 m. by river from the port. Products include sugar, tobacco, coffee, cocoa ; petroleum, iodine, salt, sulphur, cobalt, coal. Sugar, alcohol, kerosene, and aniseed rum are made. Exports tobacco, hats, charcoal, cattle. Telegraph station. (*See* Puerto Pizarro.)

Custom house of 2nd class, dep. on Paita.

U

UNIÓN, LA, cap. of prov. of Dos de Mayo in dep. of Huanuco ; lat. $9^{\circ} 42'$ S. Industries : agriculture (cereals, sugar, coffee) ; cattle-raising ; textiles ; mining (gold, silver, iron, coal).

URCOS, cap. of La Convención prov., in dep. of Cuzco ; lat. $13^{\circ} 55'$ S. Communicates by Southern Railway with Cuzco (40 k.) and Mollendo (776 k.). Industries : agriculture (cereals, coca, sugar, coffee) ; mining (coal, gold, silver) ; textile manufactures.

URUBAMBA, cap. of Urubamba prov., in dep. of Cuzco ; lat. $13^{\circ} 26'$ S. ; about 60 m. N.W. of Cuzco. Industries : agriculture and mining (silver, copper, iron, plumbago, salt, marble, gypsum).

V

VÉGUETA, Custom house of 3rd class, dep. on Callao.

Y

YANAOCO, cap. of Canas prov., in dep. of Cuzco ; lat. $14^{\circ} 18'$ S. A little W. of the S. Pablo Station on the Southern Railway (Cuzco-Juliaca branch). The district is very rich in mineral wealth, and also produces Peruvian bark and textiles.

YAUYOS, cap. of Yauyos prov., in dep. of Lima ; lat. $12^{\circ} 30' S$. Industries : agriculture, mining, cattle-raising, and textiles.

YCA. *See* Ica.

YESSUP or **JESSUP**, on R. Pichis ; lat. $10^{\circ} 20' S$. ; communicates (1) by canoe with Puerto Bermúdez, the limit of steam navigation, and thence with Iquitos ; (2) by road with Cerro de Pasco.

YLO. *See* Ilo.

YONAN, in dep. of Cajamarca, connected by railway with port of Pacasmayo (65 k.). The line continues eastward to La Vina, and will ultimately pass through Magdalena to Cajamarca.

YUNGAY, in prov. of Huailas, dep. of Ancachs ; lat. $9^{\circ} 18' S$. On the road from Huarás to Chimbote, and on the line of the projected railway. Nearest railway station at present Tablones. For industries, *see* under Carás.

YURIMAGUAS, cap. of the prov. of Alto Amazonas in the dep. of Loreto ; lat. $5^{\circ} 44' S$. ; on the R. Huallaga ; pop. 1,200. Communicates by steamer down stream with Iquitos (*q.v.*) ; also by road westward with Moyobamba (*q.v.*) (170 k.), and thence *via* Chachapoyas and Cajamarca with Pacasmayo. An important trading centre, collecting rubber for transport to Iquitos, and distributing imports from the latter town.

Z

ZARUMILLA, on the frontier of Peru and Ecuador. Frontier custom house of 2nd class, dep. on Paita.

ZORRITOS, small port in dep. of Piura ; lat. $3^{\circ} 41' S$. Petroleum works. Telegraph station. Exports : petroleum, kerosene, benzine, gasoline.

Custom house of 3rd class, dep. on Paita.

APPENDIX A

POSTAL AND TELEGRAPH GUIDE

PERU belongs to the Universal Postal Union. The administration of the Post Office is sound and progressive, and the service, considering the immense natural difficulties to be encountered, is good. There were in 1911 some 1,057 offices. Money Order and Parcels Post conventions have recently been arranged with Bolivia, the United States, England, France, Belgium, Germany, and Switzerland; and one for Parcels Post, alone, with Chile. Letters and parcels usually pass through the Lima Post Office, but those for the Montaña district go *via* Iquitos. The tables on the following pages give the charges for Internal and Foreign postage and telegrams.

TABLE I. INTERNAL

TARIFF FOR POSTAGE OF CORRESPONDENCE WITHIN THE LIMITS OF THE REPUBLIC.			Any Distance. Cents.		By Steamer or Railway.		By Mules.	
					Soles.	Ct.	Soles.	Ct.
Letters ..	For every 15 gramos or fraction of 15 gr.*	..	5					
Post Cards ..	Each ..	..	3					
Documents ..	For every 15 gramos or fraction of 15 gr.	..	5					
Every description of printed matter ..	50 "	..	2					
Newspapers ..	200 "	..	1					
Samples (without value) ..	(Maximum weight 350 gramos)	..	1 per 50 gr.					
Commercial papers ..	(Minimum charge 3 cts.) ..	..	1 per 50 gr.					
Parcels ..	For each one not exceeding 500 gr.	..						
" ..	" " 1,000 "	..				20		30
" ..	" " 2,000 "	..				40		50
Registration ..	Registration for any kind of correspondence (inclusive of receipt) ..	..	15			60		70

REGISTRATION.—For cheques and instruments of public credit and every description of declared values included in registered correspondence—1 per cent. up to 4,000 soles; $\frac{1}{2}$ per cent. if over 4,000 soles, and $\frac{1}{4}$ per cent. if over 20,000 soles. For money in coin up to 500 soles, 1 per cent. (independent of postage). For postal orders, 2 per cent. For the declared value of parcels, 1 per cent. For delivery of parcels at the place of destination, 1 centavo for every 200 gramos or fraction thereof.

Within the Lima postal area letters and post cards under 15 gr. cost 1 c. only.

* 30 gramos are equal to one ounce.

TABLE II. FOREIGN

POSTAL RATES BETWEEN PERU AND FOREIGN COUNTRIES.									
	Letters for every 15 Gramos ($\frac{1}{2}$ oz.).	Post Cards.		Newspapers per 50 Gramos ($\frac{1}{2}$ oz.).	Other printed papers per 50 Gramos ($\frac{1}{2}$ oz.).				
		Single.	Double.						
		cts.	cts.	cts.	ct s	cts.			
AMERICA—Argentina, Paraguay, Uruguay									
A.— <i>Via</i> Magallanes ..	20	3	6	2	4				
B.— " Andes (Chile) ..	20	3	6	2	4				
Brazil—A. <i>Via</i> Magallanes ..	20	3	6	2	4				
" —B. " Andes (Chile) ..	20	3	6	2	4				
" —C. Between Iquitos and Brazil ..	10	2	4	1	2				
Bolivia—A. <i>Via</i> Mollendo ..	10	2	4	2	2				
" —B. " Antofagasta ..	10	2	4	2	2				
Chile, Colombia, and Ecuador ..	10	2	4	2	2				
Costa Rica, Guatemala, Honduras, Mexico, and Nicaragua—									
A.— <i>Via</i> the Pacific ..	20	3	6	2	4				
B.— " Panama ..	22	4	8	3	6				
San Salvador ..	20	3	6	2	4				
United States of America, Canada, Newfoundland, Hayti, The Greater and Lesser Antilles, the Guianas, and the various Atlantic Islands ..									
ASIA—A. <i>Via</i> San Francisco ..	22	4	8	3	6				
" —B. " Panama and New York ..	20	3	6	2	4				
AFRICA— " Panama and England ..	22	4	8	3	6				
EUROPE—A. <i>Via</i> Panama ..	22	4	8	3	6				
" —B. " Magallanes ..	20	3	6	2	4				
OCEANIA—A. <i>Via</i> San Francisco ..	20	3	6	2	4				
" —B. " Panama and New York ..	22	4	8	3	6				
" —C. " " England ..	22	4	8	3	6				

Note. rd. equals about 4 cents.

III. FROM ENGLAND TO PERU

There are various routes: (1) *via* Southampton and Panama; (2) *via* United States (by British and French packet *via* Panama; by German packet *via* Buenos Aires and Andes).

Letters.—2½d. for the first oz.; 1½d. for every succeeding oz. The value cannot be insured.

Printed and commercial papers up to 4 lb. }
Samples up to 12 oz. } ½d. per 2 oz.

Coin, gold, silver, precious stones, jewellery, chemical and medicinal products are prohibited. Dutiable articles are liable to confiscation.

Correspondence for Iquitos and district, unless special instructions are given to the contrary, is forwarded, three times a month, *via* Brazil.

Parcels.—Routes:

- | | |
|--|---|
| (1) P.S.N. Co. (47 days to Callao) | } Four or five
times monthly.
Every six
weeks. |
| (2) R.M. Co., <i>via</i> Panama (30 days to Callao) | |
| (3) Iquitos Steamship Co. (about 8 weeks to Iquitos) | |

Not exceeding 3 lbs., by (1) 2s.; by (2) and (3) 3s.

„ „ 7 lbs., by (1) 3s.; by (2) 4s. 6d.; by (3) 4s.

„ „ 11 lbs., by (1) 4s.; by (2) 6s.; by (3) 5s.

The size must not exceed 3½ ft. in length, breadth, or depth, or a combined length and girth of 6 ft. The value cannot be insured. The same articles are prohibited as given above under “Letters.” All parcels for department of Loreto go *via* Iquitos; this direct service was established in 1912, such parcels having previously to go through Lima.

TELEGRAPHS

Rapid progress is being made in the development of the telegraph service. In 1911 there were 308 offices (276 belonging to the Government). The lines amounted to a total of about 6,475 miles. The line from Lima to Chalhuanca was opened in 1912, and others are in progress. In 1908 wireless communication was established between Lima and Iquitos, by means of five wireless and eleven ordinary aerial telegraphic relays; in June, 1912, direct wireless communication between the two places was inaugurated and an excellent service is

now maintained. The system adopted is the Telefunken musical spark.

Cable communication with the United States and Europe is carried on by the Central and South American Telegraph Co., and by the West Coast of America Co. Cables to U.S.A. go *viâ* Colón or Vera Cruz and Salina Cruz ; those to Europe link on to other systems at St. Vincent.

Internal Rates. For a telegram of ten words, 40 centavos ; for each additional word, 4 c.

For aerograms between Lima and Iquitos, a Spanish message of ten words costs 24 c. ; one in a foreign language or code, 48 c.

England to Peru. 2s. 9d. per word (except for the Montaña towns of Iquitos, Masisea, Orellana, and Requena, for which the charge is 4s. 9d. per word). Deferred rate, 1s. 4½d. per word (not accepted for Iquitos, etc.).

Week-end cable letters may be sent to Peru, Chile, and Argentina at the rate of 25 words for 20s., each additional word costing 10d. These are not accepted, however, for Iquitos, etc.

TELEPHONES

The telephone, though under Government inspection and supervision, is not a monopoly service in Peru. The lines probably amount to over 4,000 miles. The districts of Lima, Arequipa, Cuzco, Trujillo, Piura, Cajamarca, Cerro de Pasco, Huánuco, Ica, and Pacasmayo all enjoy good telephonic facilities. The longest line is Pacasmayo to Cajamarca (192 k.).

APPENDIX B

STEAMSHIP SERVICES

THE principal steamer services affecting Peru are as follows—

- A. From Europe, *via* Colón.
- B. From Europe, *via* Magellan Straits.
- C. From United States.
- D. Local West Coast Services.
- E. River services of the Amazon basin, *via* Iquitos.
- F. From Hong-Kong.

A. FROM EUROPE *via* COLÓN.—The quickest route from Europe to the coast of Peru is by way of Colón and Panama. The joint *Royal Mail Steam Packet Co.* and the *Pacific Steam Navigation Co.* have a fortnightly mail service from Southampton and Cherbourg to Colón; and another from New York to Colón. The *Leyland* line has a service from Liverpool to Colón three times a month; the *Harrison* line, a monthly service of cargo boats between the same ports. *Elder and Fryffes* carry a limited number of passengers in their weekly service from Liverpool and Bristol to Colón. The *United Fruit Co.* have a weekly cargo service from London, Liverpool, Glasgow, Bristol, and continental ports, the cargo being transhipped at New York or New Orleans; this line also carries passengers.

Continental lines running to Colón include the French *Compagnie Générale Transatlantique* (passenger and mail) from St. Nazaire, Bordeaux, Marseilles, and Barcelona; the Italian *Società La Veloce* (passenger and cargo) from Genoa and Barcelona; and the Spanish *Compañía transatlántica Barcelona*, from Barcelona.

At present the journey between Colón and Panama is by rail, but the opening of the canal will avoid the necessity of a change here.

The *Leyland* line's fare to Colón is £20; that of the R.M.S.P. to Callao is from £38 12s. 6d. to £48 12s. 6d., and to Mollendo £5 extra.

B. For the Magellan Straits route the leading service is that of the joint *Pacific Steam Navigation Co.* and *Royal Mail Steam Packet Co.* They give a weekly mail service by "A" steamers from Southampton and Cherbourg, and a fortnightly mail service by "O" steamers from Liverpool and La Rochelle-Pallice, to Brazil and the River Plate; also an intermediate fortnightly service from Liverpool. The route from Montevideo is *via* Port Stanley (Falkland Islands), Punta Arenas, Coronel, Talcahuano, Valparaiso, Coquimbo, Antofagasta, Iquique, and Arica to Mollendo and Callao. (Fares £35 to £62.)

The German *Kosmos Co.* (including some vessels of the *Hamburg-Amerika Co.*) provide (1) a fortnightly mail and passenger steamer from Hamburg, Antwerp, and London, to Chile and Peru; (2) a monthly steamer from Hamburg, Antwerp, and London to the West coast from Chile to San Francisco; (3) Monthly cargo from Hamburg, Rotterdam, Antwerp, and London steamers to west coast from Chile to Ecuador; (4) monthly cargo steamers from Hamburg and Antwerp to Chile and Peru; (5) monthly cargo steamers from Genoa, Barcelona, and Cadiz to Chile and Peru.

The German *Roland Line* of Bremen has a service between Callao and Europe, *via* Chilean ports.

The *Lamport and Holt* and *Gulf Lines* have joint regular sailings from Antwerp, Havre, Glasgow, and Welsh ports for Chile, Peru, and (if cargo offers) Guayaquil in Ecuador.

C. FROM U.S.A.—The *Merchants' Line* (W. R. Grace & Co.) run a service of cargo boats between Callao and San Francisco, and Callao and New York; two other lines have a similar cargo service between New York and Callao.

D. WEST COAST.—The local west coast services affecting Peru are—

(1) A weekly service between Panama and Valparaiso, calling at Paíta, Eten, Pacasmayo, Salaverry, and Callao.

(2) A weekly service between Guayaquil and South Chile, calling at all Peruvian and Chilean ports.

(These are operated by the joint *Pacific Steam Navigation Co.* and the (Chilean) *Compañía Sud-Americana de Vapores.*)

(3) A service on alternate Mondays and Saturdays between

Panama and Callao, *viâ* Guayaquil, operated by the (Peruvian) *Compañía Peruana de Vapores y Dique de Callao*.

E. AMAZON.—To reach Iquitos and the Montaña district of Peru the quickest and easiest route is up the Amazon. The monthly service of the *Amazon Steam Navigation Co.*, a Brazilian company, was discontinued in Dec., 1911; but Iquitos is connected with Liverpool and New York by an equivalent service of ocean-going steamers belonging to the *Iquitos Steamship Co.*, which is managed by the *Booth Line*. The *Booth Line*, which has built a pier and warehouses at Iquitos, runs a fortnightly service from Liverpool to Manáos, *viâ* Plymouth, Cherbourg, Havre, Vigo, Leixoes (Oporto), Lisbon, Madeira, and Pará (minimum fare to Manáos, £34).

Smaller draught steamers take the traveller from Iquitos along the tributaries of the Amazon into the heart of the Montaña.

F. FROM HONG-KONG.—A Japanese line, the *Toyo Kisen Kaisha*, has a service once in two months between Hong-Kong and Callao, *via* Hawaii, Salina Cruz, Honolulu; it proceeds also to Iquique and Valparaiso.

GENERAL TABLE OF SOUTH AMERICAN CURRENCIES

	Standard.	Unit.	English & U.S.A. Par Value.	Usual Unit of Commerce.	English & U.S.A. Value.	Remarks.
ARGENTINA	Gold	Peso nacional or peso, or (gold dollar) = 100 centavos	47·619d. (practic. = 48d. ·965 \$ (96·5 cents.)	Peso papier (paper dollar)	20·97d. (practic. = 21d.) 42 cents	£1 = 5·04 gold pesos (the gold peso is used for official purposes only) £1 = 11·45 paper pesos. \$1 m/n ("moneda nacional") = one paper dollar.
BOLIVIA	Gold	Peso or (gold dollar)	48d. ·973 \$	Boliviano (= 10 reales fuertes or 100 centavos)	19·2d. 38·9 cents	£1 = 12·5 bolivianos N.B.—Accounts are often reckoned in the old dollar of 8 reales or 80 centavos, instead of the true dollar of 100 centavos.
BRAZIL	Gold	Milreis gold	26·934d. (practic. = 27d.) ·546 \$	Milreis paper	16d. 32·4 cents	£1 = 8·97 milr. gold, or 15 milr. paper.
BRITISH GUIANA	Gold	Sovereign	240d. 4·866½ \$	Dollar (= 100 cents)	50d.	English coins, including fourpenny pieces, current; but accounts are kept in dollars and cents.
CHILE	Gold	Peso or (gold dollar)	18d. ·365 \$	Peso papier	About 11d. c. 22 cents	£1 = 13½ pesos gold. The paper peso fluctuates considerably. The average in 1910 was 10¾d. (The gold peso is used for official purposes only.)
COLOMBIA	Gold	Peso or Colombiano	48d. 1·00 \$	Peso papier	48d. (under ½d.) c. 1 cent	£1 = 5 dollars gold or 500 dollars paper. United States' currency is largely used. In Cucuta and on the R. Atrato silver principally circulates.
DUTCH GUIANA	Gold	10-florin piece	200d.	Gulden or florin (= 100 cents)	20d.	£1 = 12 gulden.
ECUADOR	Gold	Sucré	24d. ·487 \$	Sucré	24d. 48·7 cents	£1 = 1 condor or 10 sucres. No paper money.
FRENCH GUIANA	Gold and Silver	20-franc piece 5-franc piece	192d. 48d.	Franc (= 100 centimes)	9·6d.	£1 = 25 francs.
PANAMA	Gold	Balboa	49·5d. 1·00 \$	Silver peso	27·75d. 54·50 cents.	£1 = 4·84 balboas or 9·68 pesos. No paper money. United States' currency is largely used.
PARAGUAY	Gold	Peso or (gold dollar)	47·619d. (practic. = 48d.) ·972 \$	Peso papier	3·473d. (average in 1910) c. 7 cents (1910)	The paper dollar fluctuates; average for 1910 was £1 = 69·10 pesos. Quotations are often made in gold dollars, at the rate of £1 = 5 pesos. (The gold peso is used for official purposes only.)
PERU	Gold	Sol (= 100 centesimos)	24d. ·4866½ \$	Sol	24d. 48 cents	£1 = 10 soles. No paper money.
URUGUAY	Gold	Peso nacional (= 100 centesimos)	51d. to 53d. 1·034 \$	Peso	51d. to 53d. 1·034 \$	The peso fluctuates. £1 = about 4·70 dol. No paper money.
VENEZUELA	Gold	Venezolano or Peso fuerte (= 5 bolivares, or 100 centavos)	47·57d. (practic. = 48d.) ·965 \$	Bolivar	9·2d. 19·3 cents	£1 = 26 bolivares. (The bolivar approximately = 1 franc.) N.B.—Accounts are frequently reckoned in pesos sencillos or macuquinos of four, instead of five, bolivares (i.e., 80, not 100, centavos); and in centavos of four, instead of five, centimes.
FAKLAND ISLANDS	(British	currency)				

For further details on the currency of the country see special table.

APPENDIX C

PERUVIAN CURRENCY

IN 1872 gold was demonetised and bank notes were made legal tender; but they depreciated greatly and were withdrawn in 1888. In 1897 the free coinage of silver was suspended and the re-importation of early issues forbidden. A gold standard was established by the law of 29th December, 1897, and became the only legal standard from 14th December, 1901. The unit is the *sol*, of 25 gr. weight, 900 fine.

The coins authorised are—

Gold.—	{	The libra peruana (of 10 soles), 916 fine, =	20s. {	= \$4·866½ (In Commer- cial practice \$4·87.)
		½ libra (of 5 soles) =	10s. =	\$2·433½ „ \$2·43.
Silver.—	{	The sol (of 100 centavos) =	2s. =	\$·486½, or 48·6 cents.
		½ sol „ 50 „ =	1s. =	24·3 cents.
		⅓ sol „ (peseta) 20 „ =	4½d. =	9·7 „
		⅕ sol „ (real) 10 „ =	2½d. =	4·8 „
Bronze.—	{	⅕ sol „ (medio) 5 „ =	1½d. =	2·4 „
		2 and 1 centavos = (roughly) and ¼d.	½d. }	= 1 cent. and ½ cent.

There is no paper currency.

Legal tender—

Bronze, to the value of 5 centavos

Silver, „ „ „ „ 10 Soles (= £1)

For higher sums the English sovereign and half-sovereign are legal tender at the rate of 10 soles to the £1, being the exact equivalents in weight and fineness to the Peruvian *libra* and *half-libra*.

N.B.—A comparative table of the currencies of the whole of South America faces this page.

APPENDIX D

WEIGHTS AND MEASURES

THE French metric system is legal in all the countries of South America, and is obligatory in the Customs Houses and other government offices. The most important standards are the *metre* (= 39·37 inches), and the *kilogramme* (= 2·204 lbs.). The metric system was established by law in Peru in 1860.

In commerce, however, especially in the interior, the older systems often survive. These are confusing, as the same term may bear different values in different countries or districts of a country. In old Spain itself the standards were not quite uniform, *e.g.*, the yard (*vara*) varied between 0·847 and 0·834 of a metre. In the South American colonies this variation tended to increase; thus in Bolivia and Chile the *vara* = 0·836 m., in Argentina and Paraguay 0·866, and in Brazil 1·1110 m.

The most important of these older terms, which survive in Peru, are given below, with the English equivalents.

Vara (yard)	=	0·847 metre	=	33·37 in.,	or	0·927 yd.
Square vara	=	0·0835	of a sq. yd.			
Libra	=	1·0143	lbs avoird.			
Arroba	=	25 libras	=	25·36	lbs. avoird.	
Quintal	=	100 libras	=	101·44	lbs. avoird.	
Gallon of wine or spirits	=	0·74	imp. gallon			
Arroba	"	"	"	=	6·70	imp. gallons

The following agrarian measures deserve mention—

Tongo	=	a square with sides of 13 varas	(12·051 yds.)	=	
					145·2265 sq. yds.
Fanagada	=	5·142	acres (on the coast).		
Topo	=	3,493	sq. metres	= (approx.)	6,950 sq. yds. (usually)
"	=	4,608	" "	=	" 9,150 " (in Puno
					and Arequipa)
Cuadra	=	10,000	"	=	" 19,000 "

APPENDIX E

COMMERCIAL TREATIES AND CONVENTIONS

Between Peru and the United States of America

FRIENDSHIP, Commerce, and Navigation, 1851 ; Amended 1857, 1870, 1887.

Extradition Treaty, 1870.

Arbitration Convention signed 2nd December, 1908 ; Ratified, 1st March, 1909, for submitting to arbitration all questions which it shall be considered possible to submit to such treatment.

Pecuniary Claims Convention, 1st February, 1911.

Between Peru and the United Kingdom

Treaty of Commerce and Navigation, 1850 ; Provides for Consuls.

Convention—Postal Union, 1878, 1885, 1891, and 15th June, 1897.

Convention—Weights and Measures, 20th May, 1875.

Law—Marriages of Non-Catholics, 1897 and 1903.

Consolidated Regulations for preventing collisions at sea, 1897 and 13th October, 1910.

Extradition Treaty, 26th January, 1904.

In addition to the Commercial Treaties and Conventions existing with Great Britain and the United States of America, Peru has signed treaties of commerce and navigation with the following countries—

Portugal	..	1853, 1862 ; additional protocol, 1863
Russia	.. ..	1875
Italy	.. ..	1878
Japan	.. ..	1896
Bolivia	.. ..	1906

Consular conventions are as follows—

Portugal	.. ..	1875
France	.. ..	1879
Italy	.. ..	1896
Germany	.. ..	1899
Holland	.. ..	1908
Belgium	.. ..	1908

A General Treaty of Arbitration has been signed with Italy (1905).

At an international congress held at Montevideo in 1889, a treaty of international commercial law was arranged between Argentina, Bolivia, Brazil, Chile, Paraguay, Peru, and Uruguay, and is now in force between the first and the last three of the countries named.

APPENDIX F

DIPLOMATIC REPRESENTATIVES

1. *Of Peru to the United States of America*

Envoy Extraordinary and Minister Plenipotentiary—F. A. Pezet.

First Secretary of Legation—M. de Freyre y Santander.

Consuls—Baltimore, Boston, Chicago, Honolulu, Los Angeles, New Orleans, Panama, Philadelphia, Portland (Or.), Port Townsend, San Francisco, Tacoma.

Vice-Consuls—Norfolk, San Diego, Manila, Porto Rico.

2. *Of United States of America to Peru*

Envoy Extraordinary and Minister Plenipotentiary—H. Clay Howard.

Secretary—A. R. Magruder.

Secretary of Legation—William P. Cresson.

Consul-General (Callao)—W. H. Robertson.

Consul—Iquitos, etc.

Consular Agents—Cerro de Pasco, Mollendo, Paita, Salaverry.

3. *Of Peru to Great Britain*

Envoy and Minister—Don Carlos G. Candamo (resident in Paris).

Chargé d'Affaires and Consul-General—(104 Victoria Street, London, S.W.), Edward Lembcke.

Secretaries—Ricardo E. Lembcke and Enrique G. Swayne.

Attachés—Pablo E. Caballero and Adolfo Perez Palacio.

There are Peruvian Consuls at Liverpool, Southampton, Glasgow, Dundee, Cardiff, Dublin, Belfast, Queenstown.

4. *Of Great Britain to Peru*

Envoy, Minister, and Consul-General—E. A. Rennie, M.V.O.

Consul-General (Callao)—L. J. Jerome (Calle del Arsenal, 19).

There is a Consul at Iquitos ; Vice-Consuls at Callao, Lima, Arequipa, Mollendo, Paita, Salaverry, and for the Perene and Chanchamayo districts ; and a Consular Agent at Cerro de Pasco.

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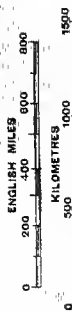
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